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COLOR PLANNING FOR HOSPITALS AND SCHOOLS.
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THE AIM OF THIS MANUAL PREPARED FOR ARCHITECTS AND BUILDERS IS TO PROVIDE FOR COLOR PLANNING IN HOSPITALS AND SCHOOLS AND ALTHOUGH APPROPRIATE FOR THE SELECTION OF ALL INTERIOR SURFACE MATERIALS IN NEW CONSTRUCTION. IN SCHOOL, AND INDIVIDUAL'S EXPOSURE TO DECORATION IS REPEATED DAILY FOR BOTH STUDENTS AND STAFF ATTEND AT LEAST FOR THE SCHOOL SEMESTER. A FULL RANGE OF CONTRASTS AND COLOR CHOICE CAN BE EFFECTIVE. IN THE CLASSROOM, CONTROL OF EXCESSIVE BRIGHTNESS CONTRASTS DUE TO NATURAL OR ARTIFICIAL LIGHTING IS IMPORTANT TO THE CHOICE OF ROOM COLORS. A COLOR CHART IS INCLUDED SHOWING A PALETTE OF 25 COLORS, SPECIFICALLY ARRANGED TO ILLUSTRATE THE CONCEPT OF CONTRAST LEVEL. COLOR PLANNING FOR FLOORING IN SCHOOLS, CORRIDORS AND STAIRWELLS, DOORS AND TRIM, CLASSROOMS, AND OTHER FACILITIES IS DISCUSSED ALONG WITH COLOR SKETCH EXAMPLES. (RK)

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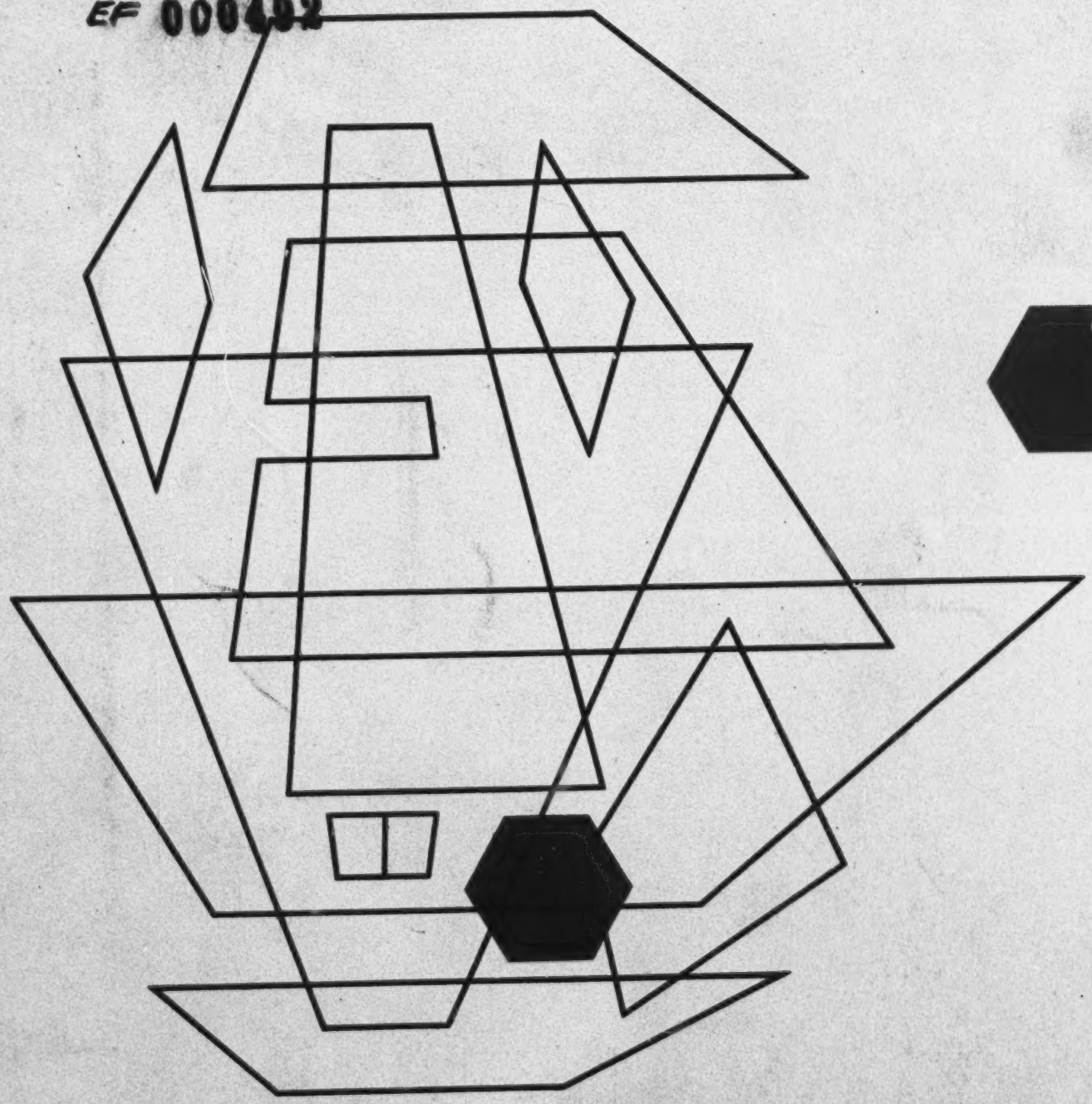
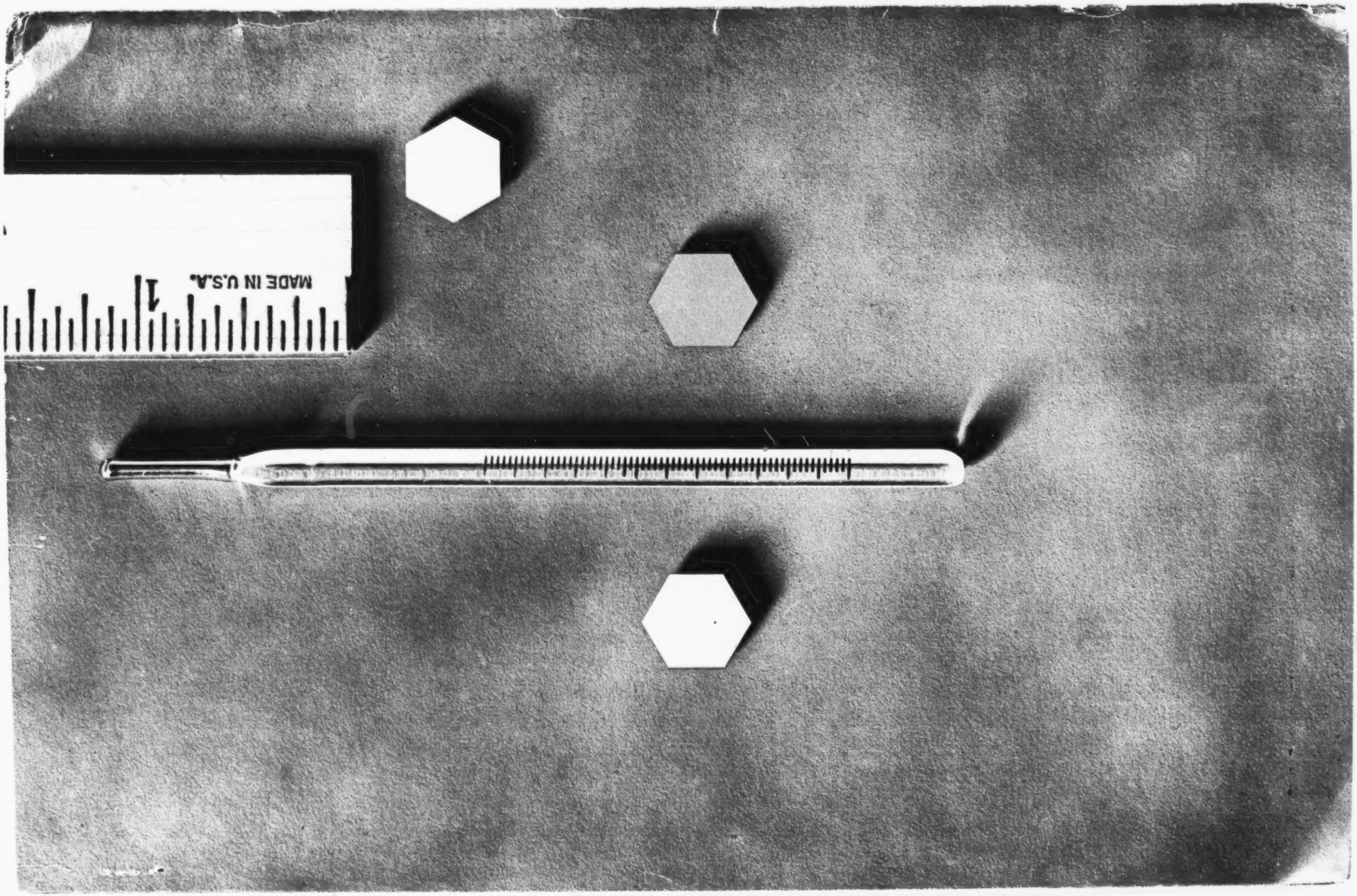


color planning for hospitals and schools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color planning for hospitals and schools

by Walter C. Granville

A MANUAL PREPARED ESPECIALLY FOR ARCHITECTS AND BUILDERS

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FOREWORD

The attitudes and suggestions contained in this manual are based in part on the experience in color planning the Chicago Lying-in Hospital and the Mothers' Aid Research Pavilion of the University of Chicago; several areas of Ravenswood Hospital, Chicago; and two building additions to Lake Forest High School. At all of these, but especially at the University of Chicago properties, it was possible to experiment with some new and original attitudes on color usage by virtue of the sympathetic cooperation of the administrators and architects. A special debt of gratitude is due Mrs. Walter P. Paepcke with whom I collaborated during the work at Lying-in Hospital.

October 1962
Walter C. Granville

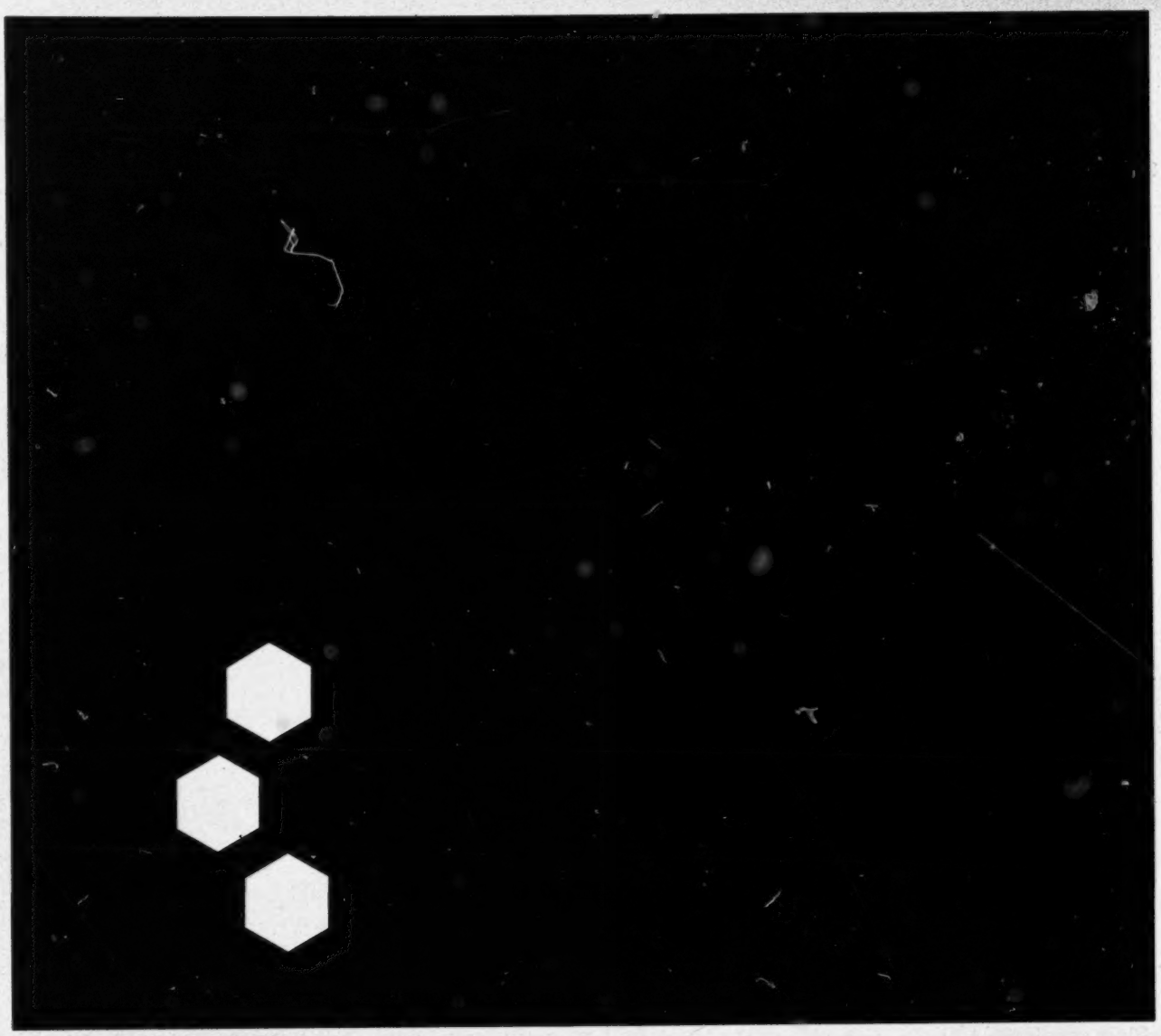
PUBLISHER'S NOTE:

Mr. Granville is an industrial color consultant and is widely known in the field of color. He is a past president of the Inter-Society Color Council and a Fellow of the Optical Society of America. He supervised the development and production of the third edition Color Harmony Manual now used extensively for color selection and specification. He also prepared three manuals on color previously issued by Martin Marietta with the following titles:

COLOR IN RELATION TO ILLUMINATION LEVELS (1958)

WOOD COLOR IN RELATION TO ILLUMINATION AND COLOR ENVIRONMENT (1960)

ATTITUDES ON COLOR AND LIGHT IN RELATION TO RESIDENTIAL INTERIORS AND EXTERIORS (1962)



The aim of this manual is to provide a basis for color planning hospitals and schools and although directed primarily at redecoration, the principles given are appropriate for the selection of all interior surface materials in new construction. The chapters on *Color Usage in Institutions* (page 2), and *Attitudes on which to Base the Plan* (page 6), relate equally well to both hospitals and schools. ⬢ The preparation of color plans is covered in separate chapters, *Color Planning for Hospitals* (page 11), and *Color Planning for Schools* (page 23). ⬢ A color chart is included. It shows a palette of 26 colors, specifically arranged to illustrate the concept of contrast level.

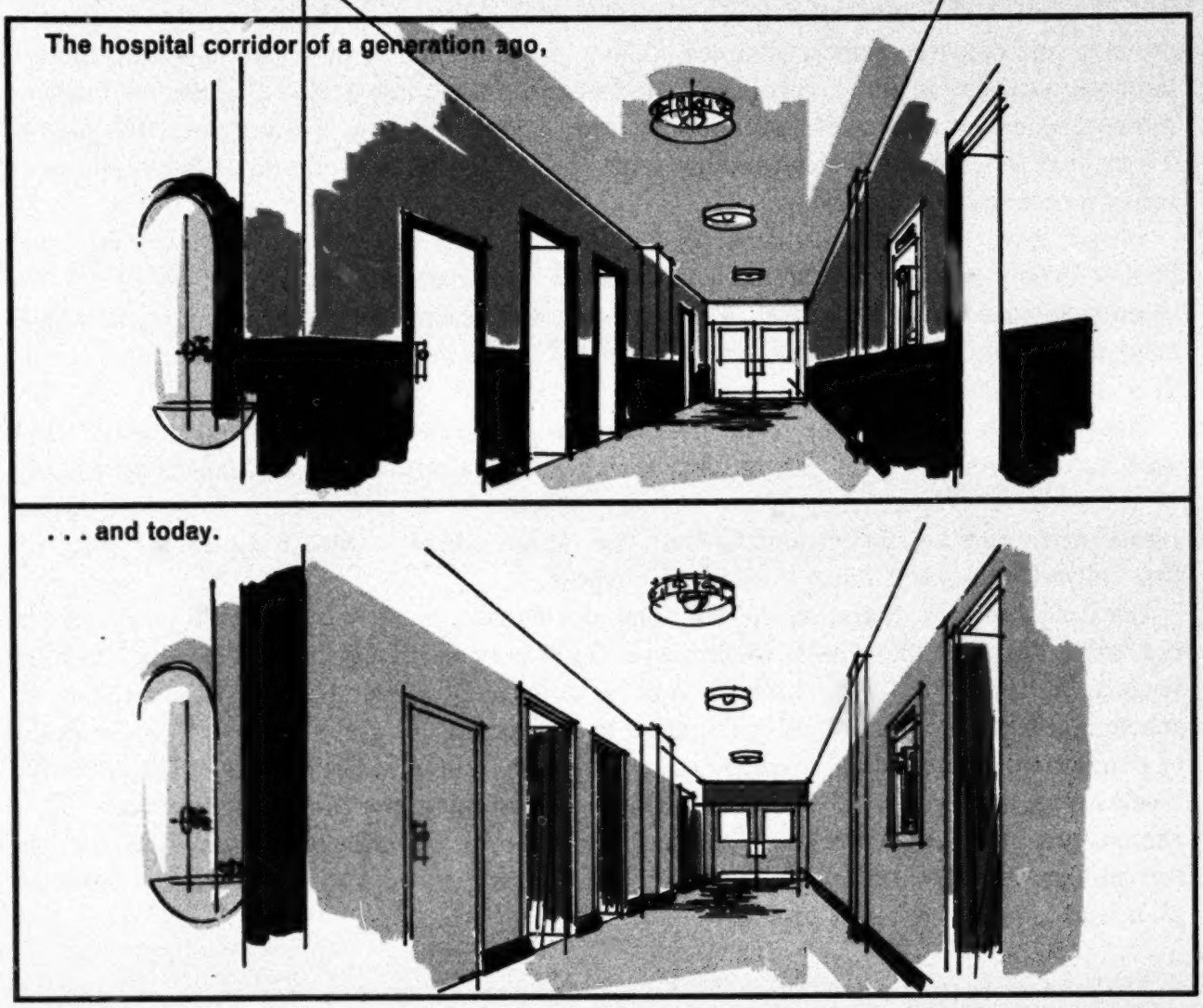
color usage in institutions

DURING THE PAST FIFTEEN YEARS, attitudes on design have given schools and hospitals a new visual character. These attitudes stem only in part from the use of new techniques of construction. This new look is created by the modern style of architecture and a much greater use of color—brighter colors for impact, variety in color for contrast.

Old school and hospital buildings often are called institutions and when they are, one perceives a fairly clear image of their general appearance. Words such as drab or institutional briefly and correctly describe the colors used in them. In large part, it was the colors used in these buildings which formed the visual image. Inherently, people like color. Why then was color not used more widely and effectively in public buildings? The explanation seems to be in the style of color schemes then in fashion and the attitudes that were considered important to emphasize.

Colors were selected not to please the senses in a positive way but to speak as quietly as possible. It was believed desirable to have bland and non-exciting color schemes, because bold schemes would be distracting and excessively stimulating. Tan and buff were considered additionally appropriate because these colors showed the effects of dirt less than others, permitting long intervals between repainting.

Today the attitudes and styles are different because the conditions which affect them have changed. In hospitals, post-operative recovery under normal conditions is a fraction of the time required in the past. A patient is sometimes put on his feet



hours after surgery. Confinement cases that required two weeks in bed now are out of the hospital within one week. The patient is *encouraged* to get back as quickly as possible to the state of being well. The color schemes should contribute to this attitude, not counteract it.

In schools, the work load on the student is heavier; he is expected to acquire more knowledge. There are more subjects from which to choose and methods of teaching vary greatly while experimenting to find the best. The visual environment should relate constructively to these characteristics, not resist their intent.

Further than this, the scheme should consider not only the immediate environment of the school or hospital but also its compatability with the patterns of living away from these buildings. It should reflect, not mask rapid changes in social and economic conditions of these times. People are taking greater interest in their sensible environment and with their desire to experience a broader gamut of pleasures, drab colors and little contrast cannot coexist with this way of life.

■ *Chromatic Noise Level* ■ A major style development in the last fifteen years has been a gradual build-up of the chromatic "noise level." Brighter colors are used to a greater extent, creating strong visual impacts. Products once black, such as the telephone or automobile, are selling in white and in many hues. This new attitude on color usage

has eliminated the unrelieved buff-tan-cream wall colors. Now bright colors are used as accents, and sometimes in large areas. Colors are combined in many kinds of contrasts—light versus dark, brilliant versus soft, and even for a change of pace, all white. Furthermore, uncommon hue contrasts such as orange and magenta are now seen frequently. These various contrast levels together with the impact of the individual colors make up today's chromatic noise level.

People have the fortunate capacity to adapt to their environment. The initial shock of new architecture or a different color plan, whether good or bad, soon levels off to a more moderate sensible impact. While the initial reaction to poorly executed details of color usage may be strong, this effect diminishes to the status of a minor irritant, perhaps at a subconscious level.

Nevertheless, the importance of careful attention to details in achieving a good result with color cannot be over emphasized for these visual situations are experienced daily. If the plan is appropriately done, people will receive a satisfying feeling, not simply pleasurable, and an understanding that the design conveys something deeper than the first impression—that it has intent and purpose.

Institutional color planning, unlike home decoration, must be acceptable to all people, not cater to one individual's preferences. This may seem like an unsolvable problem because individual color preferences vary so widely. However, the key to a satisfactory solution is believed to be the development of a character or style that satisfies the desire of people for a range of color contrasts and impacts and changes of pace. If the contrast levels are right, there will be no need to have a great variety of hues. Furthermore, if the choices are also compatible with the architecture, the purpose of the building and the furnishings, its appearance will reach the long term goal of appropriateness—the color plan that is right for today and tomorrow.

■ *Differences in Requirements of Hospitals and Schools* ■ In a school, the pattern of people's exposure to the decoration is repeated daily, for both students and staff attend at least for the school semester. In these circumstances, a full range of contrasts and color choice can be effective. In hospitals the professional staff is constantly exposed to the decoration, while patient exposure is usually short. However, for the professional staff, the rapid turnover of patients gives a frequent change to the scene, for people are just as much an element of the visual environment as are the walls. Thus, the exposure pattern of people to the color plan seems to be one of the fundamental considerations in the color planning of institutions.

Although both hospitals and schools are used by the public, the hospital is usually privately operated and to some extent competes with other hospitals for patients, staff and prestige. Consequently a visual facelifting can have a significant economic meaning to the hospital.

Pre-college schools seldom compete with one another for students since attendance is a matter of geographic location. It can be argued that since children adapt easily and quickly to environment, the decor of the school is of little consequence especially when compared to the importance of the teaching staff. However, the community takes pride in a beautiful school building and the tastes which it illustrates are examples to the students and serve as standards of reference for their future judgments.

■ *Objectives of color planning* ■ The most important objective of color planning is to make the appearance of the building and the rooms in it attractive to people. Drabness should be eliminated and the style made up to date. The plan should also enhance the appearance of the furnishings. While a successful plan may attract more people as patients and better professional people as staff, the real test of success is the frequency and duration with which the word beautiful is used to describe the result.

An institutional building should look like what it is, not something else. It should suggest discipline and avoid chromatic babble, the result of over coloring. When a color plan speaks too loudly, the viewer is confused and the chromatic contrast level is static rather than a clear signal with understandable intent and purpose. Another objective of the color plan is to emphasize the functions of rooms and areas by choosing colors that are compatible with their intended use. This involves determining the correct level of contrast and to a lesser extent choice of hue.

Certain functional features of the architecture can be emphasized with color to help orient and direct people where they want to go, as for example, elevator lobbies, regular and emergency exits, information desks, administrative areas, nurses' stations, etc. Occasionally color can be useful to de-emphasize or counteract unfortunate features of the architecture, such as unattractive wall or ceiling offsets and ceiling heights, odd room shapes or to simplify a complex layout.

Effective utilization of light is one of the main objectives of color planning. High foot candle levels and greater uniformity of modern lighting installations tend to level the appearance of interior design by minimizing shadows. On the other hand, very low levels of illumination are found in specific areas, for example, enclosed stairwells. In these cases, colors can be chosen primarily for maximum illumination.

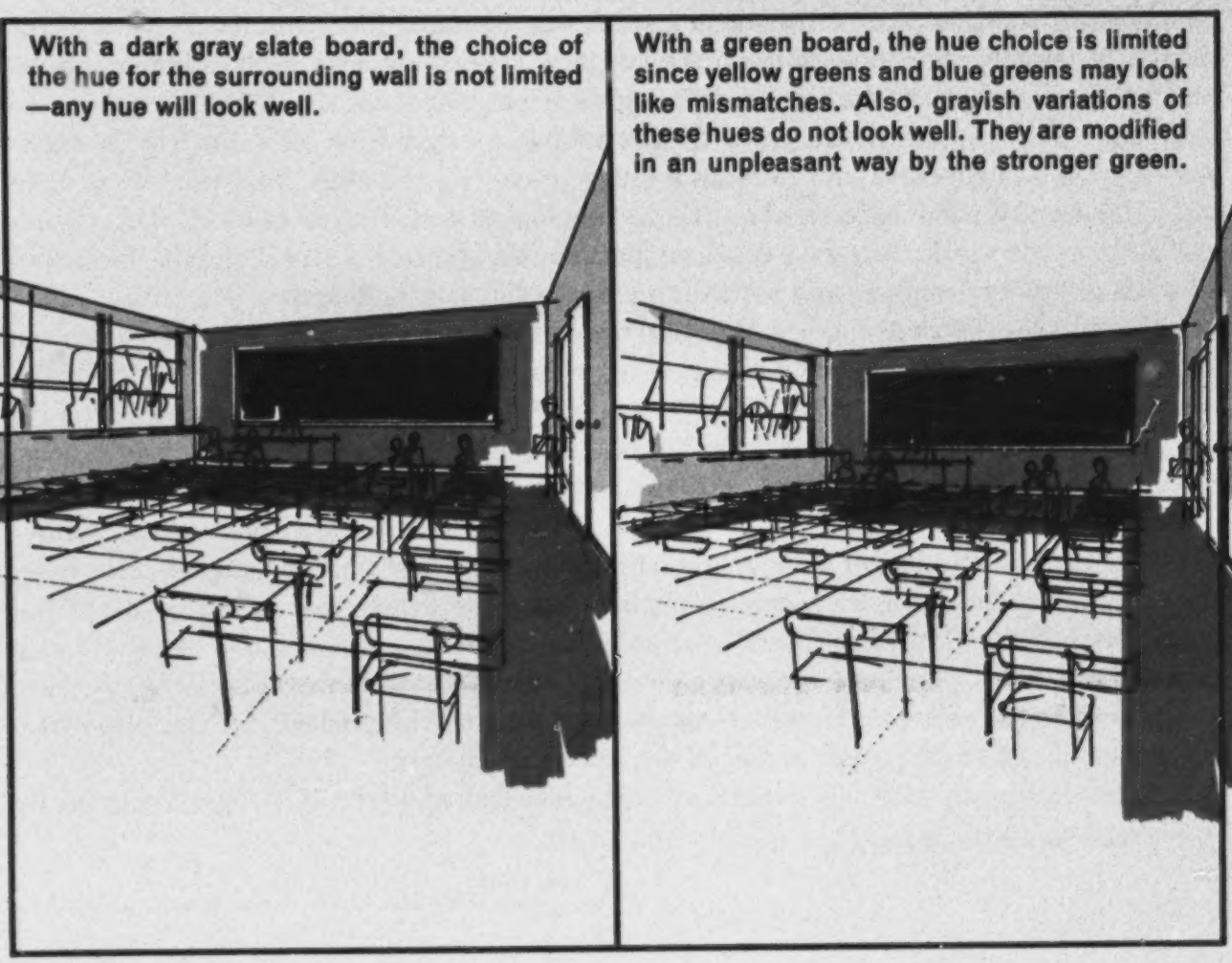
Where there is a relatively continuous seeing task such as in the school room, control of excessive brightness contrasts due to natural or artificial lighting is important in the choice of room colors. Thus, color planning should be done with sympathy and consideration of the need for adequate light and of the effect (sometimes desirable) which unequal lighting has on the scene. Without some knowledge of the lighting situation, it is almost impossible to do a really successful color plan. This may explain why it is easier to color plan an existing building rather than new construction for there is no easy way to understand the visual character produced by lighting without a firsthand observation of the rooms or a prototype for comparison.

attitudes on which to base the plan

COLOR PLANNING needs a place from which to start such as an architectural feature or some aspect or attitude by which the objective can be made effective. For example, if ease of maintenance is most important to the client, this aspect will govern and limit the scope of the color choice and will help to form the plan. On the other hand, if improved appearance is the primary objective, one thinks how best to use color to decorate, to make the scene beautiful, to give pleasure to the viewer.

Seldom does a single attitude serve as the basis for a color plan. There are four which when appropriately weighed to the needs of the client and adapted to the particular problem will help in an orderly development of the plan. These attitudes or aspects are: *decoration, function, lighting and maintenance.*

The four attitudes may be considered separately when applied to a specific problem. For instance, what is the best color for a chalkboard? In terms of decoration, dark gray slate is believed best because it looks well with all hues while a green board limits the choice of hues for the surrounding walls. In terms of function, visibility of the writing again suggests slate with white chalk—the combination offers more contrast than green. Furthermore, there appears to be no physiological evidence to support the widely held thought that green is easier to look at than any other hue. From the lighting attitude, there is basically no difference although it might be argued that slate is less insistant than green when seen under higher foot-candle levels. As for maintenance, there is no difference. Although each aspect has been considered separately, it is seen that there is some overlap of the attitudes as with function and lighting, but this is normal.


With a dark gray slate board, the choice of the hue for the surrounding wall is not limited —any hue will look well.
With a green board, the hue choice is limited since yellow greens and blue greens may look like mismatches. Also, grayish variations of these hues do not look well. They are modified in an unpleasant way by the stronger green.

In all periods of great cultural development the expression and appreciation of beauty in all the arts have received great attention for one of the fundamental pleasures of man is the enjoyment of beauty, whether it has two legs, four legs or four walls. Attention to this aspect is also encouraged during periods characterized by a high standard of living or rapid social economic progress. Therefore, it is not surprising to find the decorative aspect of color planning the most important today.

The functional attitude helps to select colors which relate to the purpose of the room or area. Except for specific kinds of identification, such as red for fire doors, it is the contrast or the change in contrast rather than the hue which is important. For most purposes, there is little evidence to prove that one hue is better than another, but where one hue does seem to perform a particular function better than another, it is often determined by process of elimination. For example, green is generally considered to be the best hue for the walls in an operating room. The reason given is that green, or more correctly blue-green, is the complementary hue to hemoglobin, the principal blood colorant. But what other hue would be appropriate? By process of elimination, all other hues can be rejected for decorative reasons, so it probably is a coincidence that the preferred green is a near complement to the hue of blood.

Over fifty years ago, Dr. Harry M. Sherman[1] studied the problem of color in an operating room at St. Luke's hospital in San Francisco and came to the conclusion that a dark

[1]Harry M. Sherman, *The Green Operating Room at St. Luke's Hospital, California State Journal of Medicine XII*, (May, 1914) p. 181.

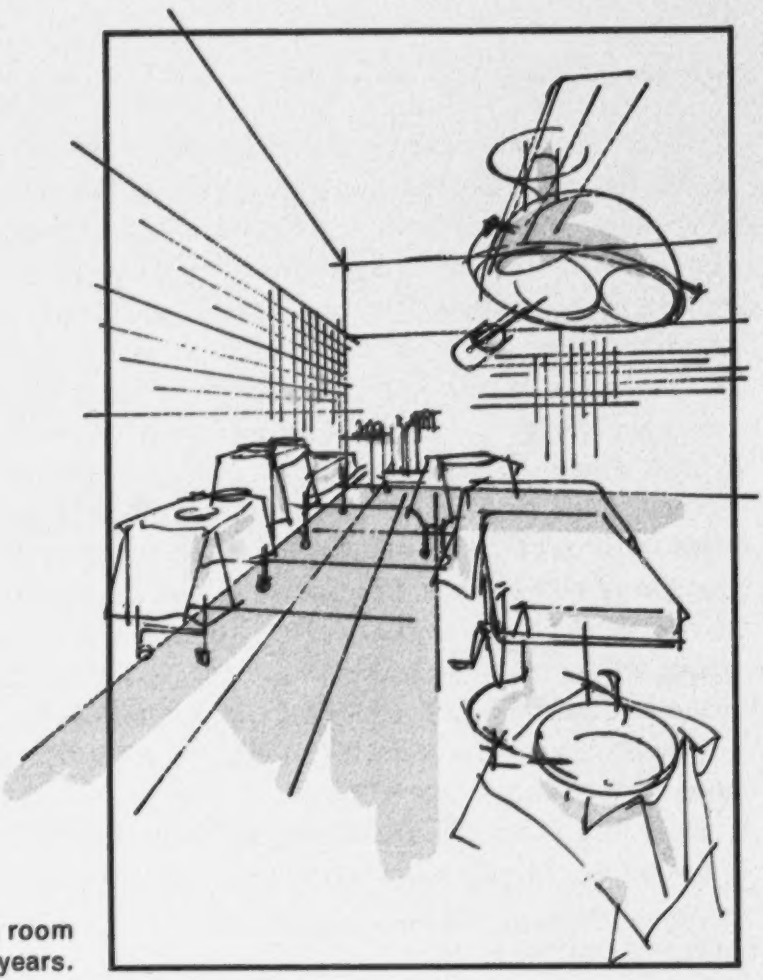
operating field rather than white made a great improvement in his ability to see into the mouth. Originally, he had all of the materials in the operating field, such as gowns, sheets and towels, dyed like the dark green of the spinach leaf, also the floor and wainscot painted this color. Unfortunately, the green dyes available at that time were not stable under sterilization temperatures and became a dingy gray. He, therefore, had the linens dyed black. There was some concern about the psychological connotation of black, but neither the patients nor the doctors gave much support to this attitude. Later, however, he agreed that black was too somber[2] and settled on a dark blue as a satisfactory substitute.

In recent years, of course, green dyes that would hold up under sterilization have become available and green linen is now a standard color for the visual operating field. This almost classical example of the functional use of color is seen to be a matter of contrast (reducing the brightness of the field) rather than a problem of hue. Actually green was a decorative choice; this hue simply looked best in the situation.

Hospital and school administrators are well aware of the importance of building maintenance and of the problem of achieving a balance between cost and appearance. However, the enthusiasm generated by a new color plan sometimes causes this aspect to be temporarily overlooked. Consideration of ease of maintenance is an important aspect of any institutional color plan and there are several techniques which can be utilized where minimum cost is essential. However, this attitude cannot be pushed too far; otherwise, the principal reason for painting, that of decoration, is ignored.

It is interesting to note the extent to which ornament and trim have been replaced by

[2]Harry Gardner, *Papers on Paint and Varnish*, (1920) p. 345.



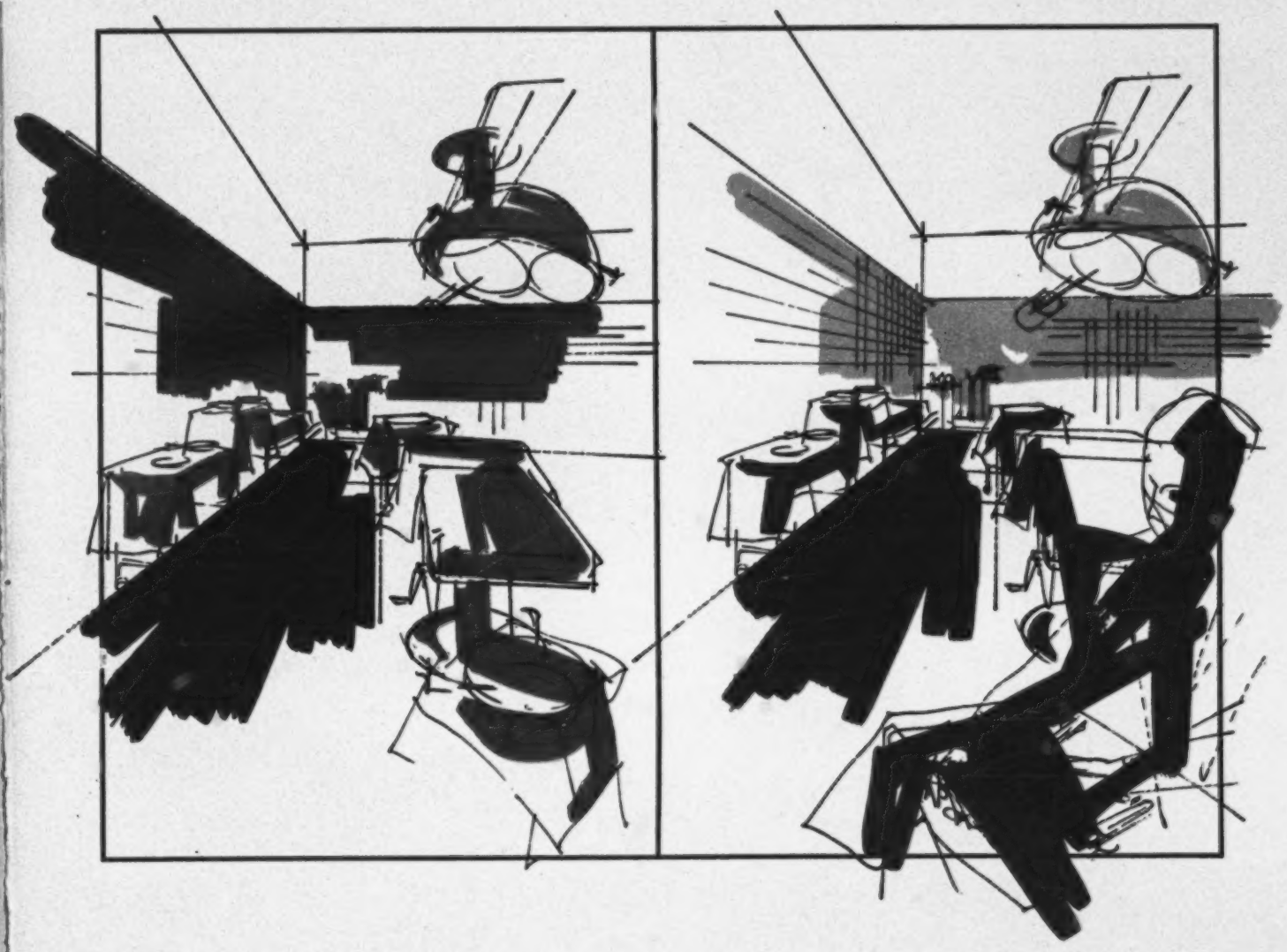
Transition in color in the operating room during the past 50 years.

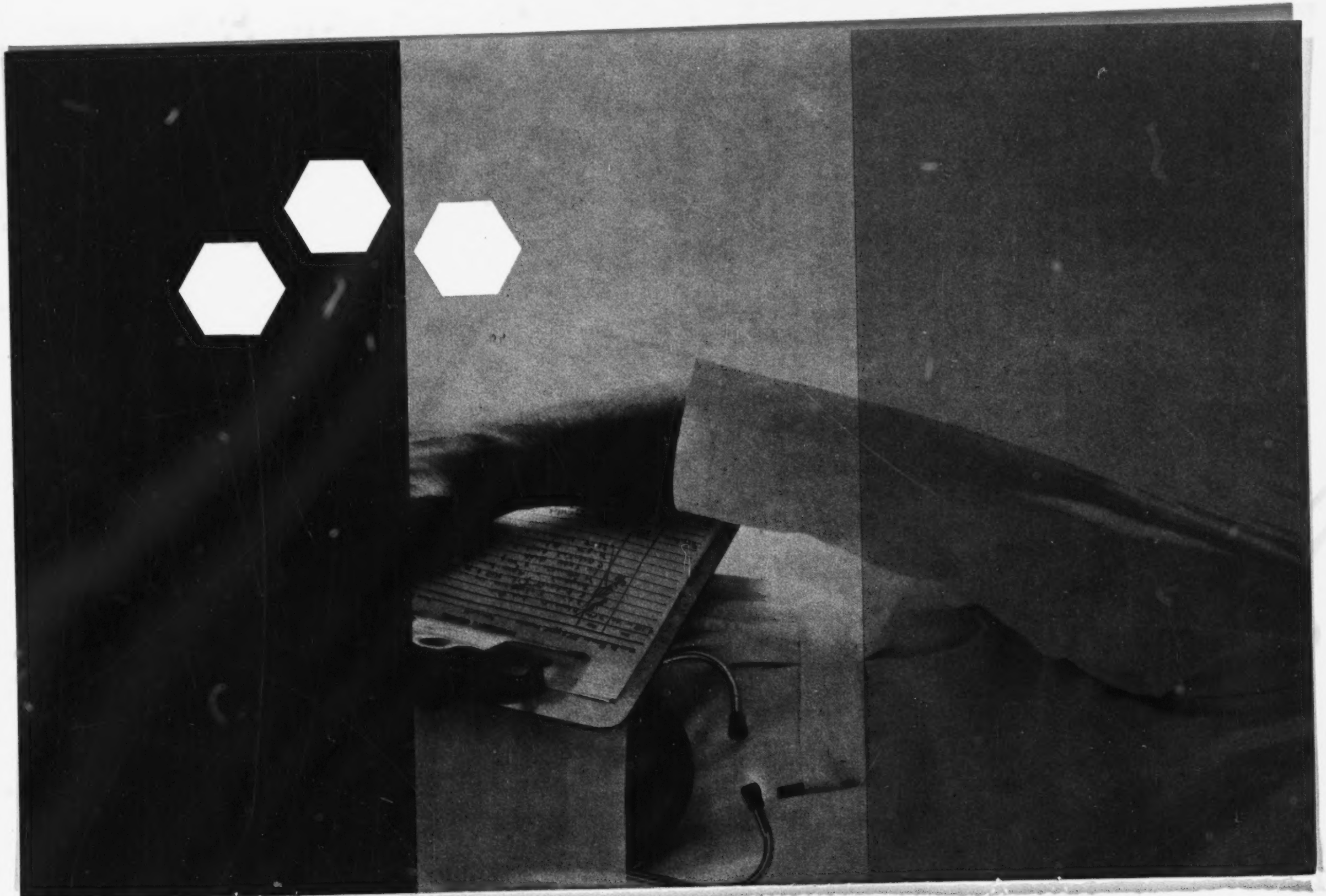
color in nearly all recent architecture. The need for greater color range has been met remarkably well by the paint industry. Paint is readily available in literally thousands of different colors and in a variety of finishes. Hence the problem of using color is not the paint or even its cost, but how to use it most effectively.

After determining the general character desired and the relation of attitudes to objectives, the next step in color planning is to decide which of the existing surfaces are to remain. These might include the flooring, wall tile and natural materials such as wood, marble, terrazzo, etc. Also at this point, one can think about coordinating color and pattern.

A detailed discussion of the relation between color and pattern is beyond the scope of this manual but its importance cannot be ignored. Color and design (pattern) are generally thought of separately but they will need to be coordinated in the end. In addition a vital question to be answered is whether the decorative effect shall be obtained by color or pattern or with both. For example, marbleized floor tiles laid in a strong pattern such as alternate black and white squares can look wonderful in corridors. The design provides impact and change of pace. Where there is a strong pattern on the floor, it may be best to avoid a strong chromatic impact from the walls—let the floor pattern speak and choose wall colors to enhance the floor. Making a simple decorative statement is desirable.

The next two chapters, one on hospitals the other on schools, are devoted to discussion and suggestions on color choice. Some color problems common to each (such as corridors) are solved in different ways. For this reason it is hoped the reader will look at both chapters regardless of his primary interest.





■ *Traffic Areas in Hospitals* ■ Perhaps the most critical selection to be made in hospital traffic areas is the corridor floor. It requires most frequent maintenance, lasts a long time and cannot be changed or renewed. It must be replaced. Long experience has shown the best choice to be one with some surface pattern and especially desirable are those that have a natural material character. Natural wood is ideal from this point of view. No pieces are alike in design and yet all have the same general appearance. This variety gives beauty to the environment and it offers a contrast with the usual wall surfaces which are uniform in color and devoid of a natural pattern.

Durability and ease of maintenance have made it necessary to use materials other than wood on floors. The most commonly used materials are terrazzo, ceramic tile or resilient flooring such as asphalt, rubber, vinyl asbestos or vinyl which come in either large sheets or in square tiles. Resilient floors are generally replacing terrazzo and ceramic tile in both remodeling and new construction because of lower cost.

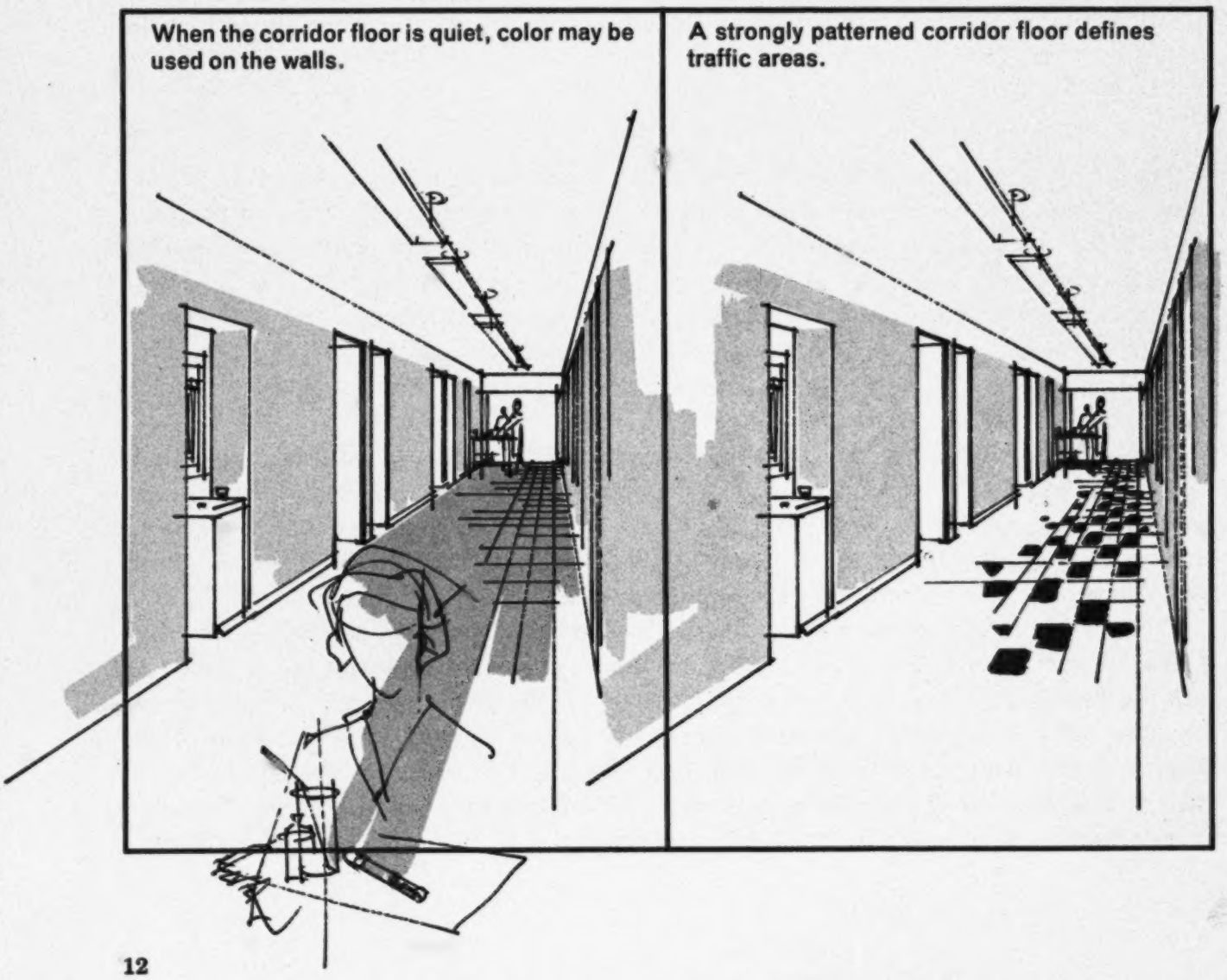
There are a variety of textured and usually directional patterns in sheet goods, but if tiles are used, one is allowed a much wider design choice for they can be combined to form geometric patterns. A simple-to-plan pattern with a low contrast level is where adjoining tiles of the same color and pattern are turned at right angles to each other. When a higher contrast level is required, one may use a variation of the checkerboard pattern in which tiles of two different colors of the same pattern are alternated. The edge of the tiles may be run parallel to the walls or turned at a 45 degree angle to get a different

effect. A border strip next to the baseboard is usually carried in the darker color. Floors of this design character have the added advantage of making dirt less noticeable; they hold their good appearance a longer time and make maintenance easier.

If a light floor is preferred and the same color is to be used on the entire surface, then a medium lightness color on the wall would look well. This need not be run all the way to the ceiling, it can be handled as a wainscot or carried up to align with the tops of the doors. Hues in the green and blue region look well in this circumstance.

To guide traffic effectively, corridors need to have a simple yet unique appearance. Simplicity is attained if the impact is restricted to one appearance element, i.e., with pattern or color but not with both, but that one element should be relatively strong. When the floor pattern has a low contrast level, the walls need to be in a moderately strong color to produce an adequate level of contrast. Preferred, however, is the use of a strong pattern on the floor. In this case, the walls would be painted a light tint of any hue deemed appropriate.

Also suggested for the walls, when the floor pattern is strong, is an off-white. This suggestion may seem misleading but the difference in its use compared with the hospitals of 50 years ago is that then the white of the hospital was unrelieved. There was no impact color or change of pace. White is not suggested as a corridor wall color, but off-white or a light, warm or cool gray (dependent on the floor color) will look surprisingly well on a corridor wall. It gives a quiet unity to the area, guidance to traffic and provides the starting point of a wonderful change of pace between it and a colorful patient room which is espe-



When the corridor floor is quiet, color may be used on the walls.

A strongly patterned corridor floor defines traffic areas.

cially good for the visitor as well as the staff, and by reflection, the patient.

The hospital staff learn their way about the hospital simply by travel experience, but to the first-time visitor, finding one's way in and out can be a frustrating and confusing experience. One of the best functional uses of color is to guide traffic by unifying the colors of corridors. To give further direction to the visitor, a strong accent color can be used to good advantage where the elevator lobbies intersect the corridors, for the strong color regardless of the hue will have a tendency to draw people to it. Accent colors will stand out best against a relatively light, soft color providing another reason for the off-white corridor.

An effect to be avoided is that of a very low contrast level, i.e., a corridor that has a flat character in lighting, color and pattern. Today's preference is for contrast over lack of contrast and for color over lack of color. However, even more unsatisfactory is the effect of chromatic babble, i.e., unrelieved color contrast where every surface carries an impact.

Stairwells are often used by staff and visitors and should be lighted as well as corridors but they are not. Therefore, white or light clear pastels are indicated. When white is used, it can be relieved by painting one of the walls or some architectural feature in the stairwell a clear pastel. If soiling around the handrail of the stairwell is a problem, a band a foot or so wide and centered on the railing itself can be painted in a relatively dark hue, but not black. This can become a pleasing design and is far preferable to a dark wainscot.

■ *Doors and Trim* ■ Wood is an ideal material for doors to the patient rooms and other areas where a metal door is not required. The wood can be stained in any way desired. Some may prefer natural birch but a natural oak door stained somewhat dark can also look very handsome. Choose the wood that is liked and regardless of the color choice, it will make a fine transition between the corridor and the room colors.

The door trim or the door buck may be painted in with the wall color, especially when there is a lightness contrast between the corridor wall and the door. However, if the two are similar in lightness, the lack of contrast between them may be judged uninteresting and in these cases, the trim or the door buck can be painted in a very dark, deep green or brown that will offer a strong contrast between both the wall and the door.

■ *Ceilings* ■ It is generally best to paint all ceilings flat white, especially where indirect lighting fixtures are used. The ceilings could also be painted in a clear light tint of almost any hue but this technique should be used only when a chromatic or pattern impact cannot be conveniently obtained with either the floor or the walls. The choice of the ceiling color then will depend to a large extent on the kind of lighting in the corridors. It should be remembered that where direct lighting fixtures are mounted in the ceiling, the contrast they make with the surrounding ceiling tends to make the ceiling color look darker and grayer than with indirect lighting.

■ *Windows and Window Walls* ■ Windows often have a stool of a natural material such as marble or wood and the color for the window trim should be chosen to look well with the stool. Where the trim is a good looking stained wood, it can be varnished or painted in either a light or a dark color. There is some advantage to a dark color, it offers another contrast element which is desirable if the room has a minimum of decoration.

The walls in which the windows are set can be treated in a uniform way throughout the hospital. To minimize brightness contrasts with the sky, a light color is indicated. A very light gray or off-white will look well with any hue which might be chosen for the side walls. The window-wall color should be carefully chosen so as to look well with the window blinds or other light control treatment.

■ *Mechanical Features* ■ Convectors, ventilation duct grills, fire hose cabinets and other kinds of mechanical equipment often present a problem. For instance, if the grill appears on a light wall, painting the grill in with the wall will show dirt sooner. However, painting it dark will emphasize it as a feature but mask the dirt. One must choose the technique which seems best in any given set of conditions. The convectors might be best painted in a semi-gloss enamel of the same color as the floor. Another obvious choice is to paint them in the same color as the walls on which they are located. The better choice depends on the size of the unit and its proximity to the floor.

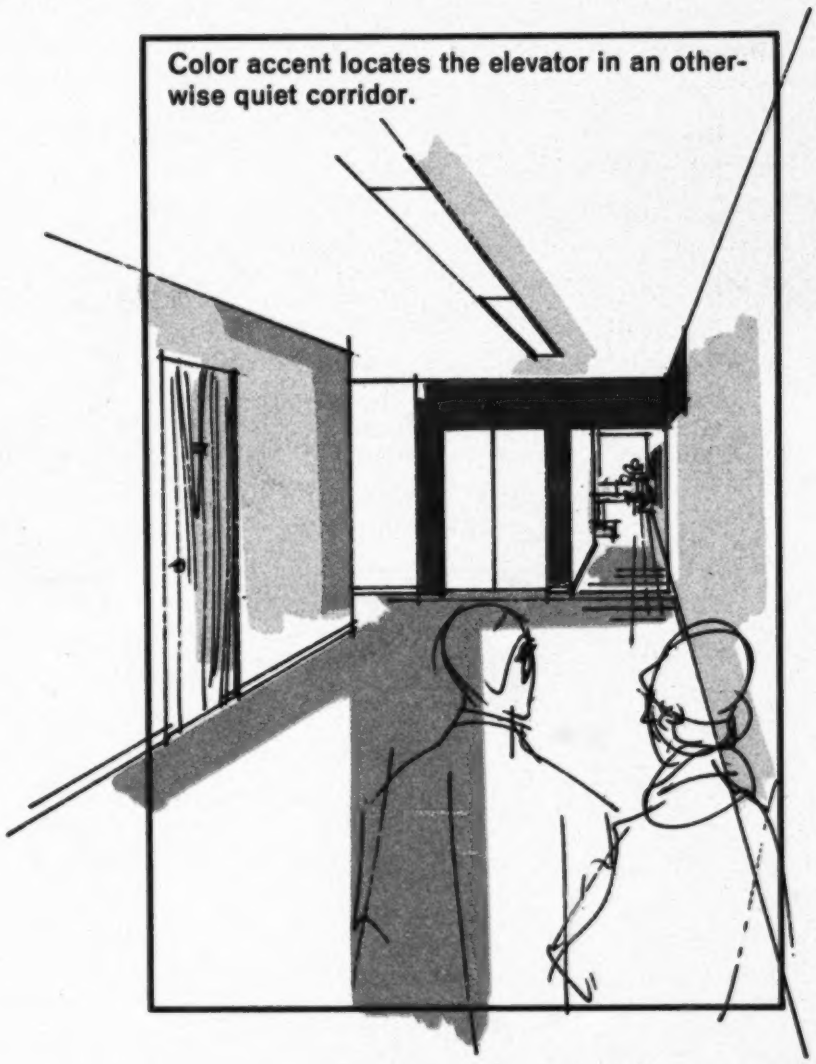
Electrical switch boxes and fire hose cabinets are usually found on corridor walls. These can either be painted in with the wall or if factory finished in a gray enamel, can be left that way because this finish will be equally as durable and, therefore, as easy to maintain. However, it is suggested that the interiors of the fire hose cabinets be painted white, making the hose easy to see and to inspect. Nothing is really gained by painting red the interior of the cabinet, assuming it has a glass door, for the red is usually in shadow and is not readily identifiable. However bright yellowish-red enamel is suggested for the doors leading to fire escapes. This color quickly identifies them and provides an element of impact which can be enjoyed.

■ *Surface Gloss and Maintenance* ■ In areas with heavy traffic, semi-gloss wall finishes are suggested over mat finishes. They hold their original appearance longer, are repeatedly washable and resist burnishing and marring. Nevertheless, many people choose a mat finish; they like the appearance and the way it camouflages uneven walls. The choice between them depends on how one weighs each characteristic, but the problems of institutional maintenance suggest a semi-gloss finish on wall areas with heavy traffic or those that must be washed frequently. In patient bedrooms and all other areas where appearance is most important, an eggshell finish will look well. This is a finish with a gloss between semi-gloss and mat and although washable will not withstand frequent washing.

Door trim, window stools and trim, baseboards and doors should have at least a semi-gloss finish. Where maximum durability of finish is desired, a full gloss enamel may be used.

■ *Use of Red? or White?* ■ Many people question the use of red in a hospital because it reminds them of blood, but red is associated with many things in life—fire engines, sunsets, or a rose. With the greater use of color today, it should not be omitted in decoration; however, this is not to imply that red should be used indiscriminately.

Historically, the "white" look was standard in hospitals. It implied a state of asepsis and thus reassured the patient. Today, this condition is taken for granted by the patient, and white or off-white can be thought of as a decorative color. It will make chromatic colors more beautiful by contrast, such as a white ceiling with colored walls, or two white walls and two colored walls. In these situations, the former association is lost.



Color accent locates the elevator in an otherwise quiet corridor.

■ *Waiting Room* ■ The waiting room should be treated in a special way. It not only is the first room which the visitor sees on entering the building but is also the place where he must live with his thoughts and concern either as a patient about to be admitted or as a visitor to a patient room. These reasons and the fact that the waiting room should be easily distinguished from the corridors suggests that it be identified by a high contrast level. It should have a style and if possible, a character that is unique to the institution. Design and color should be used to full advantage and any architectural details enhanced. A flat or bland character is inappropriate. Proper lighting should include more than one kind of fixture to avoid uniformity on the walls and hard shadows from furniture. The waiting or reception room in a hospital should be designed; it should not just happen.

For a change of pace, pattern may be used on some walls rather than the floor. A relatively strong color on one wall can be effective. Some older buildings have architectural ornament on the ceiling and these are made beautiful by painting with an appropriate accent color.

The seating should be arranged in an interesting way, not around the periphery or simply in parallel rows. Some natural wood, either as a table, wall paneling or the entrance doors themselves, helps to lend warmth and beauty to the room.

The waiting room should be attractive, colorful, interesting.

■ *Patient Bedrooms* ■ Patient bedrooms should look light and cheerful, a result obtained with a moderate level of contrast. A change of pace between the corridor and the patient room helps to give this impression especially when the direction of change is from a lower to a higher level of contrast.

Formerly all four walls were painted in one color, but a more recent practice suggests that at least two colors be used on the walls of the rooms. If one starts with the attitude of using an off-white on the window wall, either one or both walls at right angles to it can be painted in a light clear tint of almost any hue. Some recommended combinations are shown in the color chart and include tints of yellow, red (pink), green, blue and a purplish blue. The depth of the tint will depend on the amount of contrast preferred, also on the position of the window. When the window is very close to the side wall, the light strikes the side wall at grazing incidence and little is absorbed and colored. Thus the character of the hue is lost to a great extent. In this case, a color with a greater depth and clarity will be more satisfactory. When the window is in the middle of the wall, a light clear tint will look well.

The wall opposite the window can be painted in the same off-white or light gray as used on the window wall for it will make a nice contrast with the two side walls. Furthermore, this wall serves as a primary reflector of natural light from the window. Thus a light color on this wall will raise the overall illumination and lightness level in the room.

Occasional ceiling offsets are necessary to contain ventilation ducts, etc., and these can be useful if an added bit of color is needed. The vertical face of these offsets can be painted in a fairly strong clear accent color, thus enhancing a necessary architectural feature. When the ceiling offset is on the wall opposite the window wall, it provides an added opportunity for a contrast with the two side walls.

The floor tile can help to provide a change of pace between the corridor and the patient bedrooms. When a two-color checkerboard arrangement is used in the corridor, a single color may be used in the patient rooms. Medium shades are to be preferred to the very light ones and green or tan hues go well with most furnishings. Suggested is the same pattern style and color of flooring in any one area or on any one floor.

Choosing a baseboard color is often a problem because it is available in a limited range of colors. An off-white will make a pleasant contrast between the floor and the wall color but its appearance is hard to maintain. More satisfactory is a fairly dark baseboard color

in a brown, green or warm gray depending on the color of the floor tile. A black baseboard usually makes too strong a contrast. Dark grays, if they have a neutral hue, usually look cool and uninviting. Of all, a medium to dark brown seems to work best.

Flat white is right for all ceilings including the ceiling of the offset. It helps to maintain a feeling of lightness and cheerfulness. Where the ceilings are high, it is believed better to leave them white rather than to try and bring them down with a darker color as this tends to fight the natural character of the architecture. A good attitude to maintain is that the architecture should be enhanced or accented rather than an effort be made to change the proportions of rooms. Consider the appearance effect, not the dimensions.

Lighting usually presents a difficult problem in a patient room. For a very ill patient, a low level of illumination is necessary. In other cases, lighting can add greatly to the cheerfulness of the environment. Some directional character of the table or floor lamps is desirable for it helps to prevent a flat appearance which a single lighting fixture in the center of the ceiling will create. This suggests that lamp shades should have some degree of opacity rather than be very translucent.

Adequate intensity of light for patient examination is still another problem and the best way to obtain this is with a supplementary portable lamp. It is also important to control natural light at the windows. Both venetian and lattice shade blinds have been found practical although some express a preference for the roller type of lattice shade constructed of narrow wood strips. These are available with a sheet of diffusing plastic laminated to the street side of the blind providing additional control of the light entering between the strips. The lattice shade or venetian blind combined with cotton-lined draw draperies will give adequate control in the most critical situations. For the average condition of light control, the lattice shade alone with the diffusing sheet mentioned above is adequate, and the drapery can be for decoration only.

■ *Patient Bathrooms* ■ Patient bathrooms usually have a wainscot of tile and in older buildings it is often white. Today some color accent is desirable. One or two of the upper walls between the tile and the ceiling can be painted in an accent color. If new tile is to be installed, one can consider the use of a solid color on one wainscot with the remainder in white. Another possibility is to use a pattern constructed of three or more colors, but it is suggested that there be a preponderance of white in the pattern. The pattern may be used on one or two walls rather than all four with the remainder in solid white.

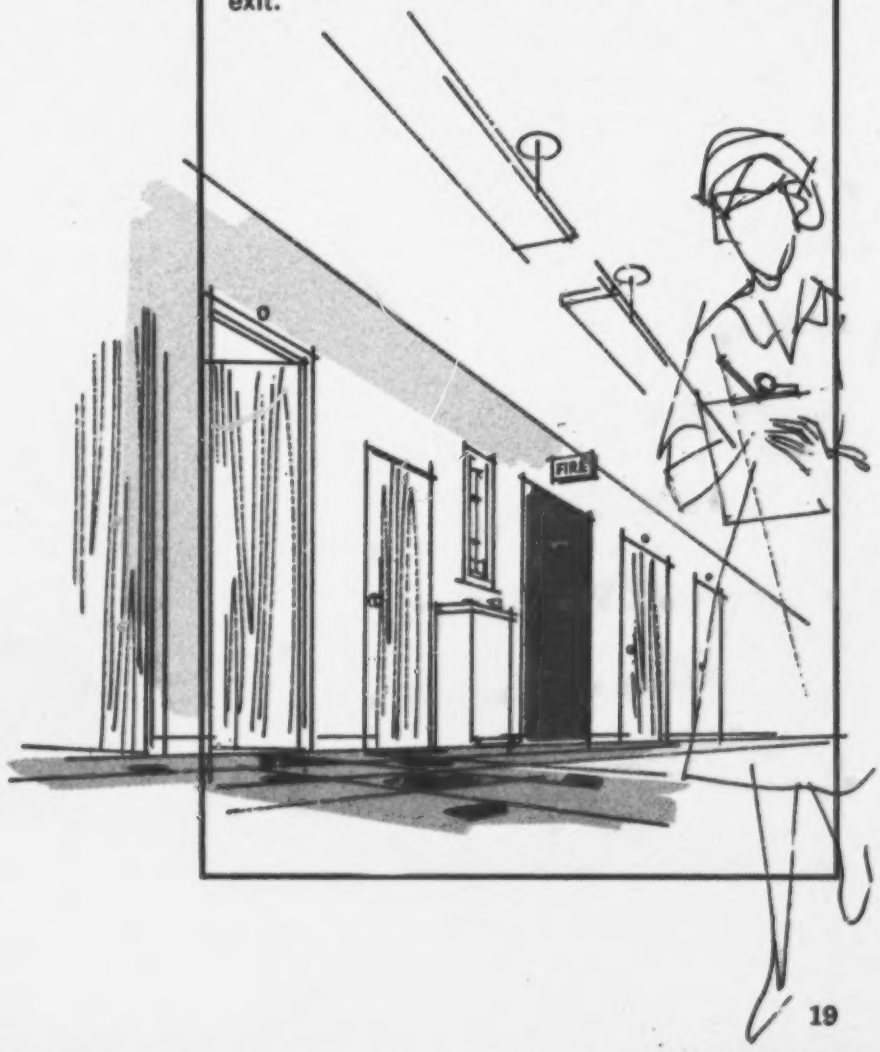
Since lightness is especially desirable in the bathroom, a floor pattern with a near white background is appropriate and the hue of the pattern elements can be the same as one of the wall tiles. Adequate lighting is recommended. In a well lighted room the patient is conscious of a state of cleanliness and is reassured.

■ *Nurses' Stations* ■ The nurses' station is a good area in which to use an accent color for its location, although known to the staff, is of interest to the patient and visitor. Furthermore, it helps to make the corridors more attractive. An accent color is suggested for the wall at right angles to the corridor direction and if convenient it should be visible from both directions. Almost any hue is appropriate so the choice should relate to the other colors in the environment.

■ *Other Facilities* ■ There are many special facilities that service the entire hospital including laboratory, laundry, food preparation, sterilization, locker room, lounge, toilet room, lunch room, storage and stock rooms. In these it is generally preferable to keep the color schemes simple. Most can have one wall in color, the remainder should be in an off-white. Again, no one hue seems to be preferable. The colors are perhaps best chosen in terms of individual facility utilizing architectural features or nicely proportioned walls. Also relating the choice to the special type of work that goes on in each will lend interest and variety to the rooms. For example, white, stainless steel and oak furniture supply all of the contrast needed where glass is cleaned. The interest is in sparkle and gloss contrast and to use color would detract from this effect.

■ *Operating Room Area* ■ The choice of wall colors in an operating room has already been discussed in the section on Attitudes. A light, soft green wainscot and an off-white upper wall seem best from long experience. In composition floors, the electrically con-

Red on the fire-exit door calls attention to its purpose yet discourages its use as a regular exit.



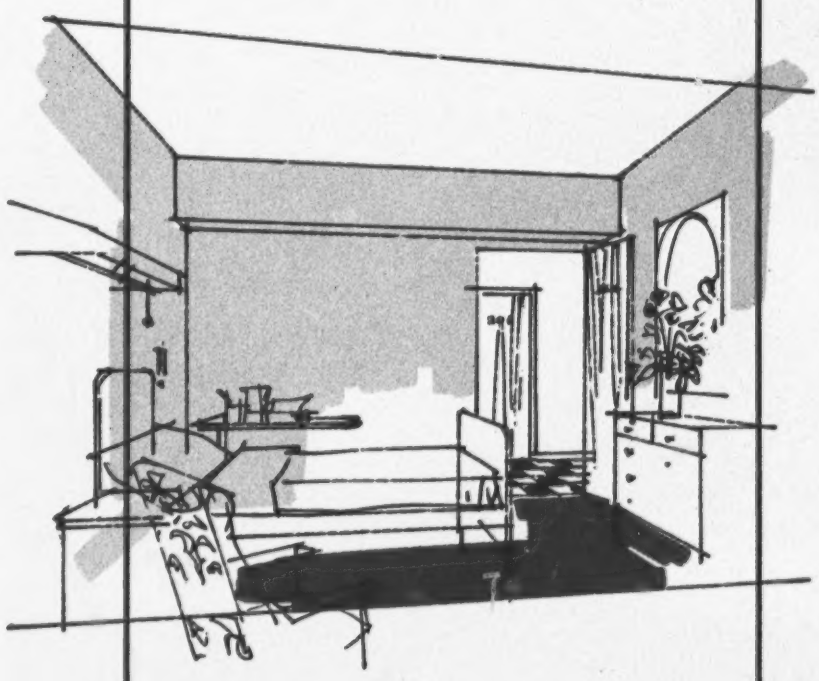
ductive black is usually combined with white in a random pattern and the darker varieties of these are generally preferred. It is best to avoid any bold pattern in these areas.

There is no particular need to use color in a recovery room. In fact, light gray or off-white walls are probably best. This color will give an increased illumination level which may help in judging the condition of the patient.

In the operating room area there is usually a special lounge, toilet facilities and perhaps a coffee room. In the lounge, it is best to avoid the use of green and to obtain as relaxing an environment as possible with some bright color as in the drapery.

■ *Toilet Rooms* ■ Toilet rooms for both staff and visitors are among the most neglected areas in a hospital—neglected by default rather than intent. The principle mistake in their planning is believed to be inadequate illumination. If they were well lighted, people would be less prone to practice sloppy habits. Good lighting makes people more aware of questionable practices. It is suggested that these rooms have a moderate contrast level, especially on the floor and that at least some of the walls be white tile, the remainder being a solid color or pattern in which the color is a clear, strong tint. These sharp, bright contrasts will help to make the room sparkle, but the pattern should not be so confused as to conceal soil. Another good place to use color would be an occasional upper wall where it can be bright and strong, but above all, there should be an adequate number of ceiling lights so that the toilet partitions do not act as light baffles. In a washroom with one toilet stall, two ceiling lights are suggested.

The same color on all walls.

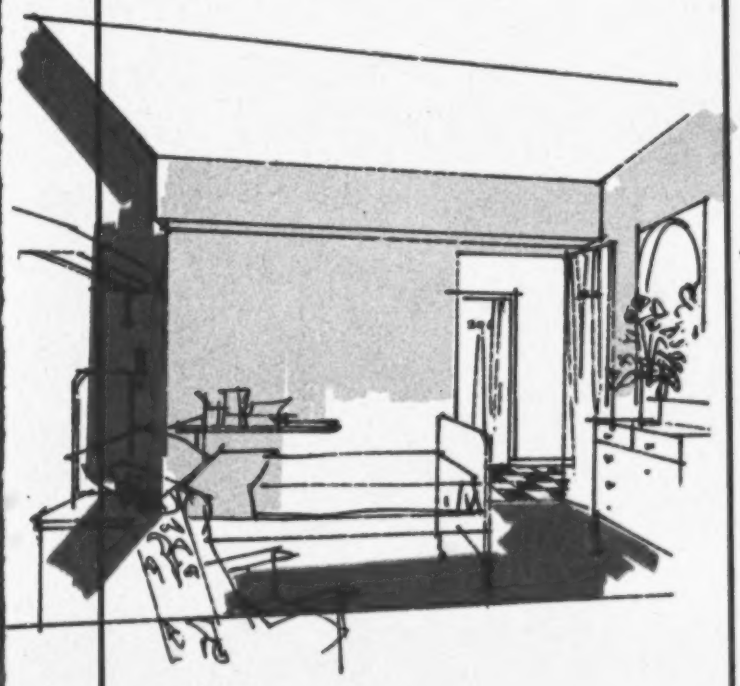


■ *Administrative Offices* ■ In these the color treatment depends on the kind of lighting and the placement of the fixtures. If the fixtures are of the totally indirect variety, then only the very lightest and clearest of tints should be used on the walls for the illumination level provided by such equipment, although of good quality for seeing, is relatively low. On the other hand, if fluorescent fixtures are used, the intensity is greater and since a large fraction of the light is directed downward, darker and stronger colors can be combined with light colors on the walls.

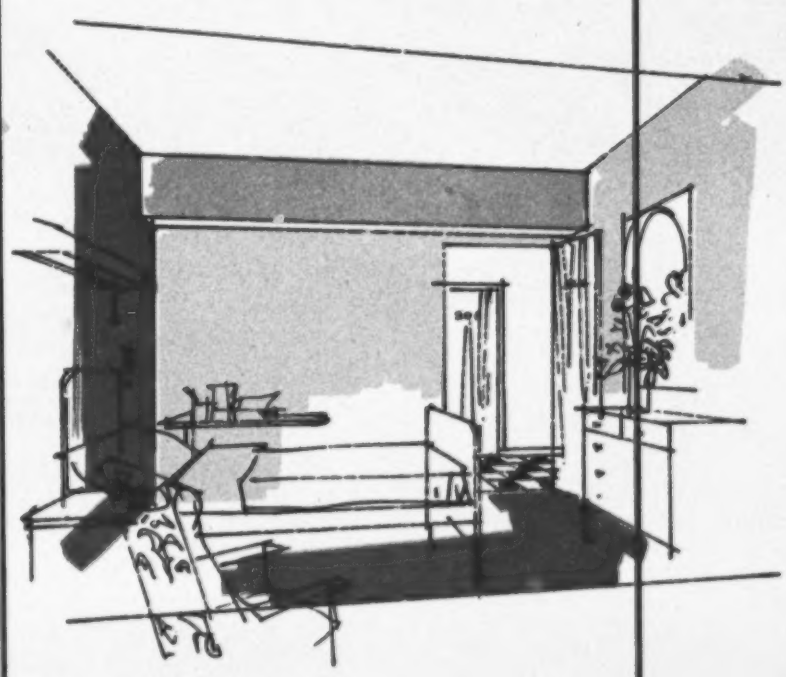
■ *Out Patient Facility* ■ This facility usually includes a separate waiting room and examining rooms and is often visited more than once by the same patient. In this waiting room, it is not so much the contrast level that is important as to give another kind of interest to the room perhaps by the use of art forms such as pictures. A few good prints representative of different styles of painting should make the waiting a bit more interesting. Perhaps most important of all, the environment should be right for people, an environment in which they look well and can be enjoyed by other people in the room.

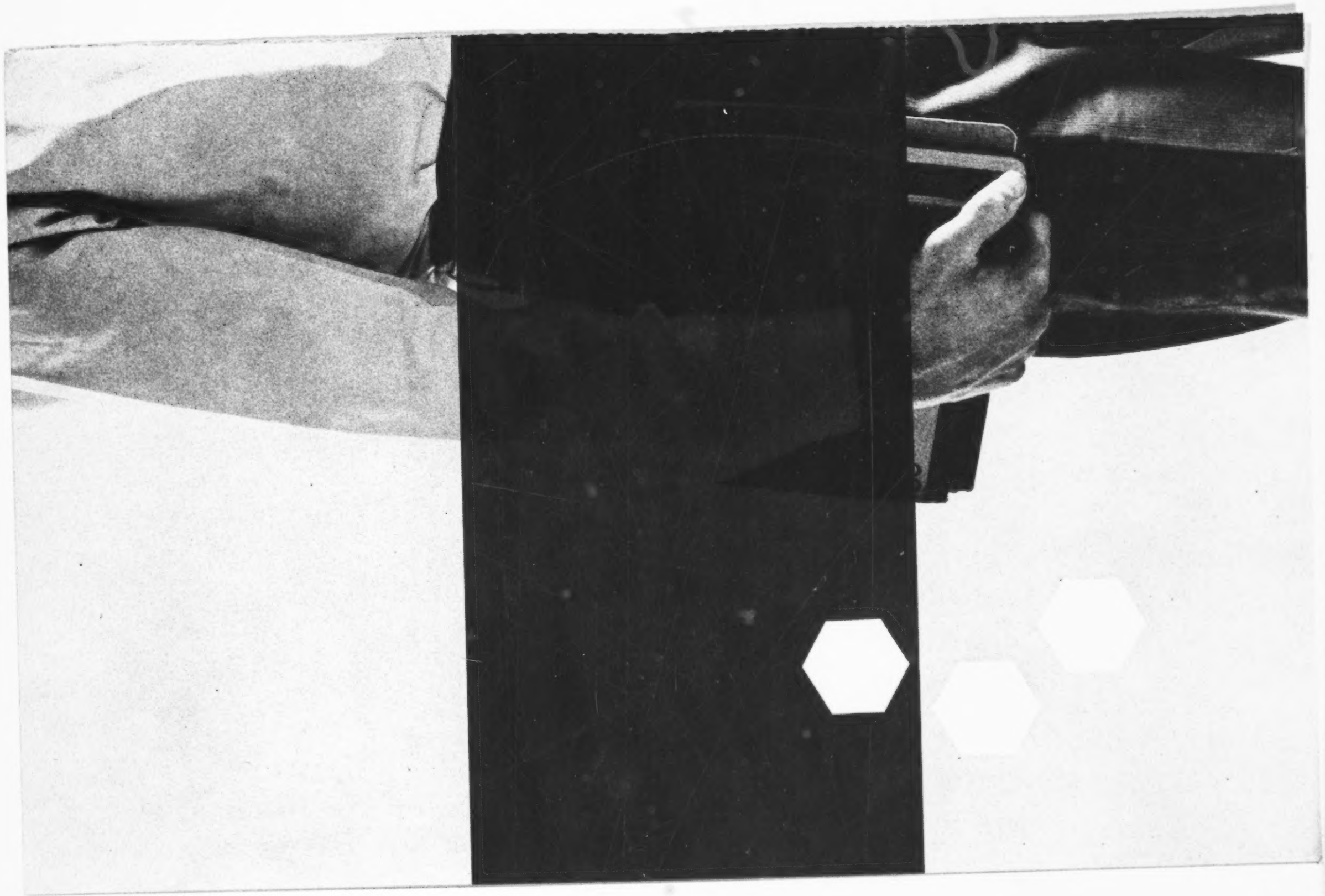
Fairly strong tints have been used quite successfully in small examining rooms. They take the patient's mind off himself and detract from the usual small size of the room. In general, only one hue should be used in each room and unless it is very soft, its use should be restricted to one or two walls, the others being in a light gray or off-white. On the floor, one of the previously selected colors or patterns should be repeated rather than to select a new pattern just to be different.

A two-color scheme.



An accent scheme—one accent on ceiling or wall offset can be added to either of the other schemes shown.





color planning for schools

THE SIMPLEST COLOR PLAN is believed to be the right plan for schools. It should in no way attempt to detract from the purpose of the institution. An overly busy plan may develop into chromatic babble, a kind of visual noise which has no clear impact on the mind and emotions. The plan should enhance the basic architectural design and suggest discipline and unity, relationships which while admittedly obscure, should be allowed to influence choices wherever possible.

■ *Flooring in Schools* ■ The first surface to consider in color planning a school is the floor. If it cannot be changed, the color plan must be related to it. If a new flooring is to be chosen, the first thing to decide is how far any one color or pattern should be carried.

In contrast to hospitals, there seems to be an advantage in using the same color and pattern of flooring in all corridors and classrooms. This attitude would not only simplify the color plan but also give unity to the building. Furthermore, there is no real need to select the floor color or pattern to define corridor or other major traffic areas since their size and design make their purpose quite evident. Therefore, it is suggested that the same pattern and color of flooring be run throughout the school except where a different decorative character or durability is required.

The best types of resilient flooring are those that have a natural or variegated surface pattern such as the marbleized or simulated wood grain. The most appropriate colors are in the regions of light brown, tan, beige or green; long experience indicates these will generally look well with most wall colors and classroom furniture. Any of these floor colors used with white or off-white ceilings and upper walls will provide the basis for an efficient utilization of lighting and allow one to concentrate on giving interest and variety by appropriate choices of wall colors.

■ *Corridors and Stairwells* ■ In older buildings, corridors were generally provided with very little artificial lighting making it difficult to use effectively on walls any but the very lightest colors. Darker colors simply look too gray and depressing; these colors must have adequate lighting on them in order to be effective.

Lockers are usually located in the corridors and their color should be related to the floor. Because of contrast phenomena, neutral gray lockers are to be avoided as the usual tan or green floor color will make the neutral gray appear bluish or purplish, an unpleasant effect. Preferably, the lockers should be a warm gray, a soft tan or beige or green in degrees of saturation which are not influenced in an unpleasant way by the floor color. One can easily judge this effect by viewing the proposed floor and locker colors side by side. A dark brown or dark green locker color also could be used provided the corridors are reasonably well lighted, for these colors would make a nice contrast with the usual flooring.

When one side of the corridor is nearly filled with lockers, the adjoining wall should be in a color which makes a good transition from one bank to another. A light gray or off-white is recommended but if this contrast is too stark, a soft beige in a hue similar to the lockers and floor will look well. A wall free of lockers provides an excellent opportunity to use color, either on the entire wall or as a wainscot. Tints from the blue-green to yellow hue range would be appropriate, also blue. The choice of blue may seem questionable to many people for it is difficult to use well. However, if the locker wall is an off-white, a light clear blue for the wall opposite is an excellent choice. It gives variety to the color plan, and the quieting influence of blue is more suited to the corridor than to the classroom. Unless there is a reason to do otherwise, the upper walls above the wainscot should be white or light gray, and the ceilings white.

In schools, stairwells are generally open and simply form an extension of the corridor. When the stairwell is at the end of a corridor, one can use an accent color on the end or side walls, either for the entire height or on the upper wall only. The wainscot can be a light gray or off-white. It helps to brighten these areas and simplifies the transition in color when there is a change in the color of the corridor walls from one floor to another. If an accent for the upper walls is not considered appropriate, a color can be used on the wainscot.

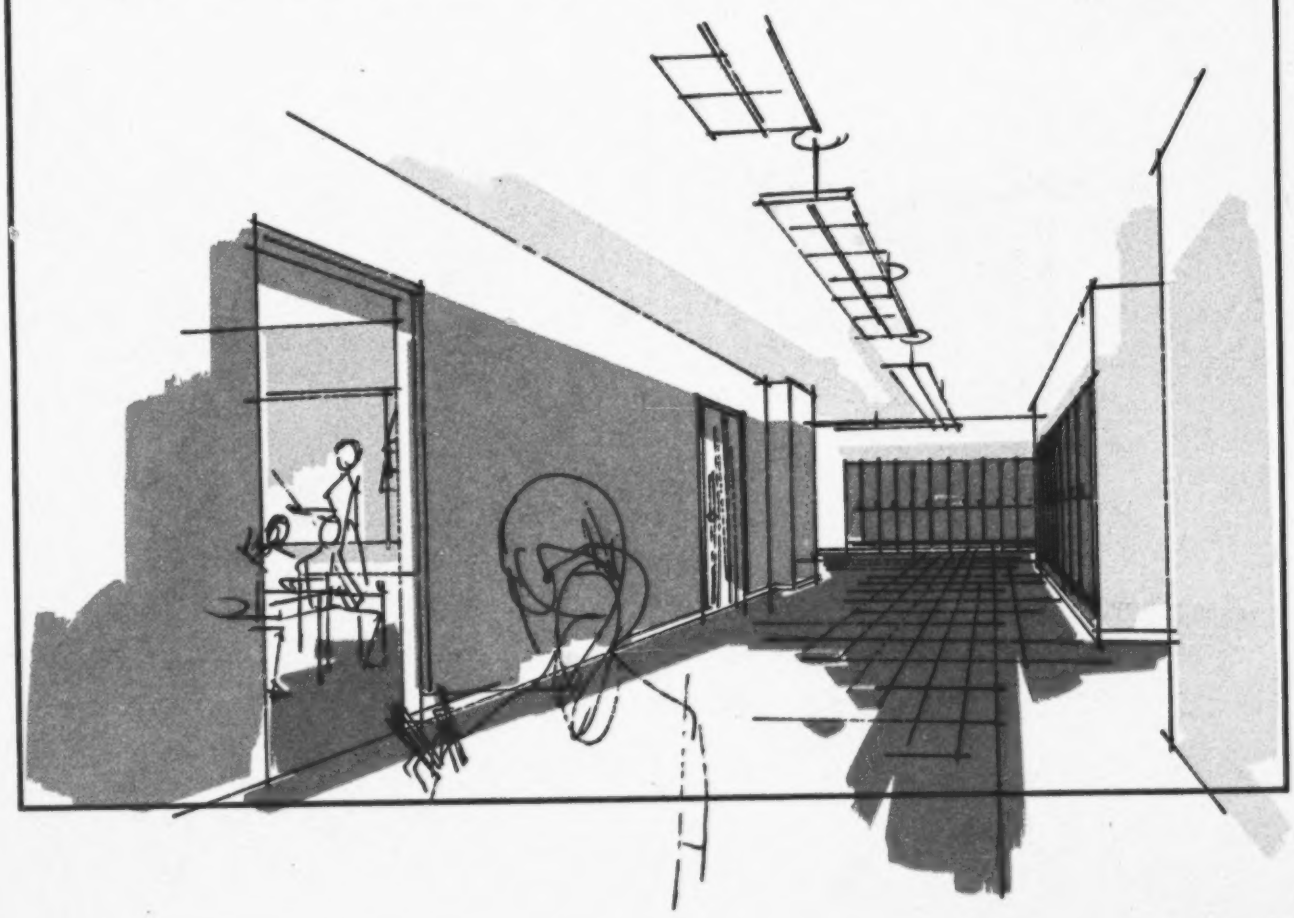
When the stairwell leads off at right angles to the corridor, it is probably best to avoid the use of an accent color on the upper walls. Instead, consider changing the color of the wainscot from that of the adjoining corridor. Medium to light values in the blue-green to yellow hue range are suggested. If the color of the stairwell wainscot is to be changed from that of the adjoining corridor, the color should be obviously different; otherwise, there is no point in using two different colors.

Enclosed stairwells are made more pleasant if an accent color is used on one wall and contrasted with white, a tint, or a light gray on the others. However, in dim illumination there is reason to avoid light gray because a clear tint of the same reflectance as the gray will produce a slightly higher level of illumination. This seemingly impossible increase is based on the theory of inter-reflection in enclosures which requires that the spectral reflectance curves of the colors be used in the computation, rather than the single reflectance value usually assigned to paint colors.

For the stair treads, a dark color is recommended. It will make a functional and decorative contrast with the side walls. Dark brown, dark green or terra cotta are good choices. The stairs will be safer to traverse if any non-skid element on the edge of the tread is made as near as possible to the color of the tread. Calling excessive attention to the edge of the tread as with a different color, texture or pattern, will tend to over-emphasize this feature. What will be seen is a contrast of the edging material with the tread rather than a clear differentiation of one step to the next. With treads and risers of the same color, the normally highlighted edge gives adequate visibility. All details of stairwell color planning deserve careful consideration.

The use of elevators in schools is generally restricted and no effort should be made to

Blue may be used occasionally on a corridor wall. It has a quieting influence in traffic areas and affords a change of pace with classroom schemes.



call attention to them. The door should blend with the surrounding wall perhaps by repeating the locker color. A practical color for the interior is a light, warm near-gray.

Auxiliary fire-exit doors can be painted impact red, even though they are appropriately distinguished by other means. The red color immediately calls attention to their special purpose, yet helps to restrict them to emergency use. A light, bright orange-red is preferable to the usual fire red which is bluer and darker. The lighter color is more visible and more pleasant to look at.

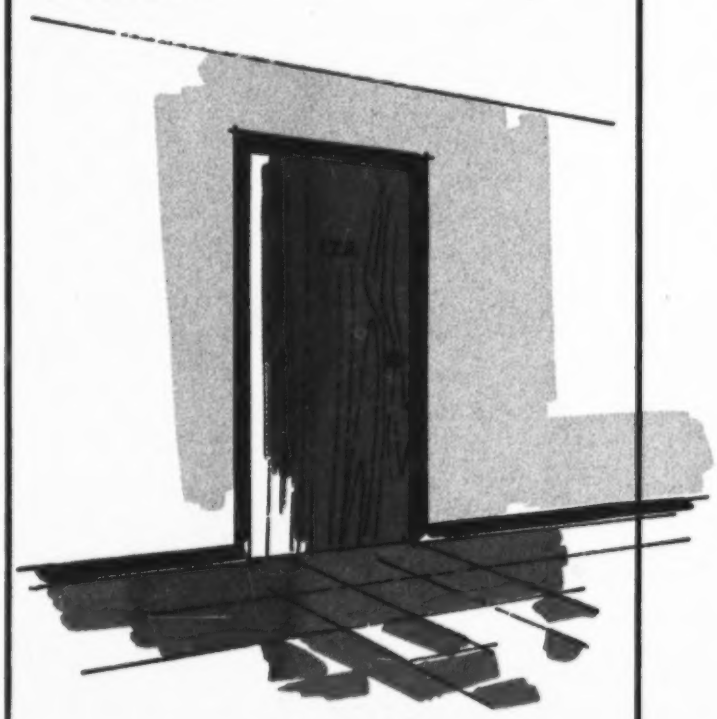
Fire-hose cabinets are usually identified by lettering on the glass door, and there is no need to call additional attention to them by using red on the inside of the cabinet. It is preferable to paint the inside white so the hose is highly visible and easily inspected.

■ *Doors and Trim* ■ Wherever possible, doors should be made of natural wood, preferably in a medium or dark value. The lighter values are just as acceptable but are more subject to soil. Finishing with a glossy varnish is suggested to emphasize and protect the natural beauty of the wood. A high-gloss finish is believed better than a mat or semi-gloss because a different kind of contrast is added to the scene. This helps to avoid the monotony of surface finish, a characteristic of "old" institutional buildings where every surface had about the same degree of gloss. Basing the choice on both function and decoration is the best approach.

Where metal doors are required, they can be painted the same color as the wall or in a dark brown, dark green, or a dark warm gray. Black would call too much attention to them, while medium grays are too ordinary and contribute nothing to the decoration.

It is sometimes desirable to paint the door trim or door bucks in the same color as the adjoining wall, but an awkward situation develops if the wall colors used on either side

Dark trim is easy to maintain and simplifies the wall color transition from the corridor to the classroom.



of the door are different. The problem of where to stop one wall color and start the other is avoided, and a more attractive result obtained, if the door bucks are painted in a very dark brown, black olive, or dark green. These near-to-black colors provide the transition from one wall color to another, an ornamental accent to the scene, and in a glossy finish are easy to maintain.

Rubber or other composition baseboard mouldings are generally made only in solid colors, and are difficult to maintain because they lack surface pattern. The darker, grayer shades are to be preferred, in a hue matching the average color of the floor. It is believed that both black and neutral gray should be avoided, except when black is an element in the floor. One offers too much contrast, the other too ordinary a contrast.

■ *Classrooms* ■ The new attitude is to have a change of color scheme from one classroom to another. This does not mean that every one should be different but that the architectural features of each room should help to suggest the color to be used. In other words, let the design of the room rather than preconceived scheme suggest the color treatment.

An important factor to consider in the classroom is the control of natural lighting. In fact, this is often the place to start the color plan. Windows usually run the entire length of one side. The wall to the right of the window wall is usually faced by the students and, therefore, it will carry the primary chalkboard. If the chalkboard is made of dark gray slate, very light tints on the surrounding wall will make too strong a value contrast with the board and are to be avoided. Light yellows are generally unsatisfactory for this reason. The colors in the medium value range are to be preferred and even relatively dark colors are appropriate when the walls receive excessive sunlight.

There is still another reason for avoiding tints on the wall faced by the students. The window closest to the wall allows the light to strike it at grazing incidence and at this angle, most of the light is reflected from the top surface before entering the paint film. In this case, tints do not contain enough colorant to impart significant color to the wall. Darker and stronger colors should be used if they are to count.

The wall opposite the windows will normally appear brighter because it receives more light than any of the others. Since the light from the window strikes this wall at right angles, most of the light will penetrate the surface and be acted upon by the colorants contained in the paint. Consequently, tints will carry their normal color appearance—they will not look washed out. When this wall has a ceiling offset out of the direct line of sight, the offset is a good place to use an accent color. Wall offsets provide vertical panels that also can be emphasized with an accent color. However, the use of accent color should not be forced in classrooms. The need should occur naturally. As one studies the room for color usage, the reason for accents should be evident, not conjured.

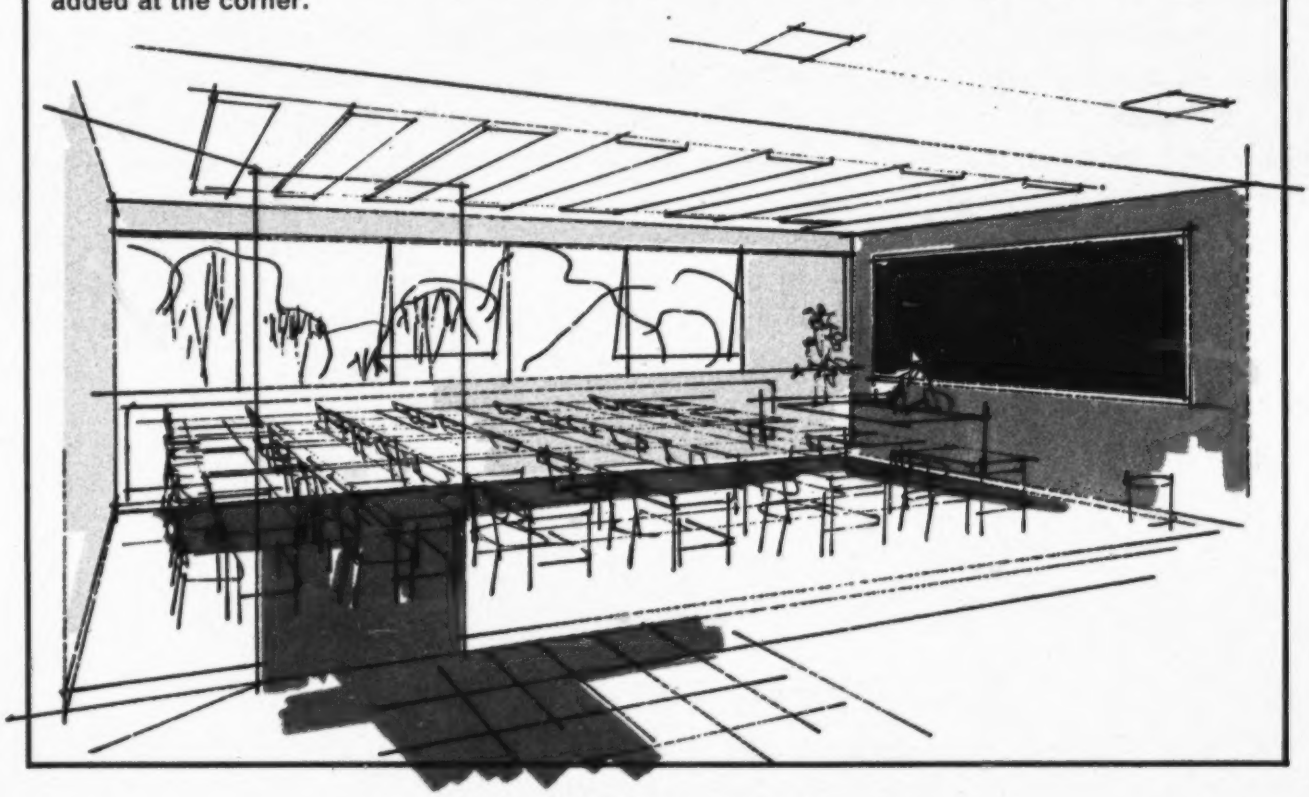
The back wall in the classroom should be treated simply and if anything, underemphasized. Too light a color on the wainscot is to be avoided. The wall under the windows should be related to the flooring and to the stool and should be repeated in all classrooms. Radiators, convectors or pipes can be painted in this same color but in a semi-gloss or full gloss finish.

In science rooms, black is the standard color for the laboratory benches. This is best as it provides a dark field for judging instrument scales and the cleanliness of glassware, and in general, minimizes glare. The walls of these rooms are mostly covered with storage cabinets and cannot be used to bring color in the room. However, there are generally ventilation ducts, and one of these can be painted in an accent color. Where the walls do show, a light, warm gray will look well with most storage cabinets and complement the black of the bench tops.

In new construction, concrete blocks are sometimes used for economy and they are painted with the same finish as the plaster. These relatively mat-finish paints tend to mask the surface texture in an unpleasant way. It is suggested that these blocks be painted in a full gloss enamel. The blocks will look much more attractive because the surface texture is enhanced and the wall will be easier to maintain.

The choice of the color for chalkboards already has been discussed in the section on Attitudes. Dark gray slate provides the best visability with white chalk. Green chalkboards were popular when they were first introduced, probably because they were different in color and because the thought was prevalent that green was easier to look at. Green no longer deserves this popularity. It limits the choice of wall colors to those that will look well with green. Furthermore, there is no evidence that green is easier to look at than any other hue. Dark gray slate should resume its traditional role.

Here, the window light is reduced by the short section of solid wall at the far corner suggesting a somewhat lighter wall color around the chalkboard. If needed, an accent color may be added at the corner.



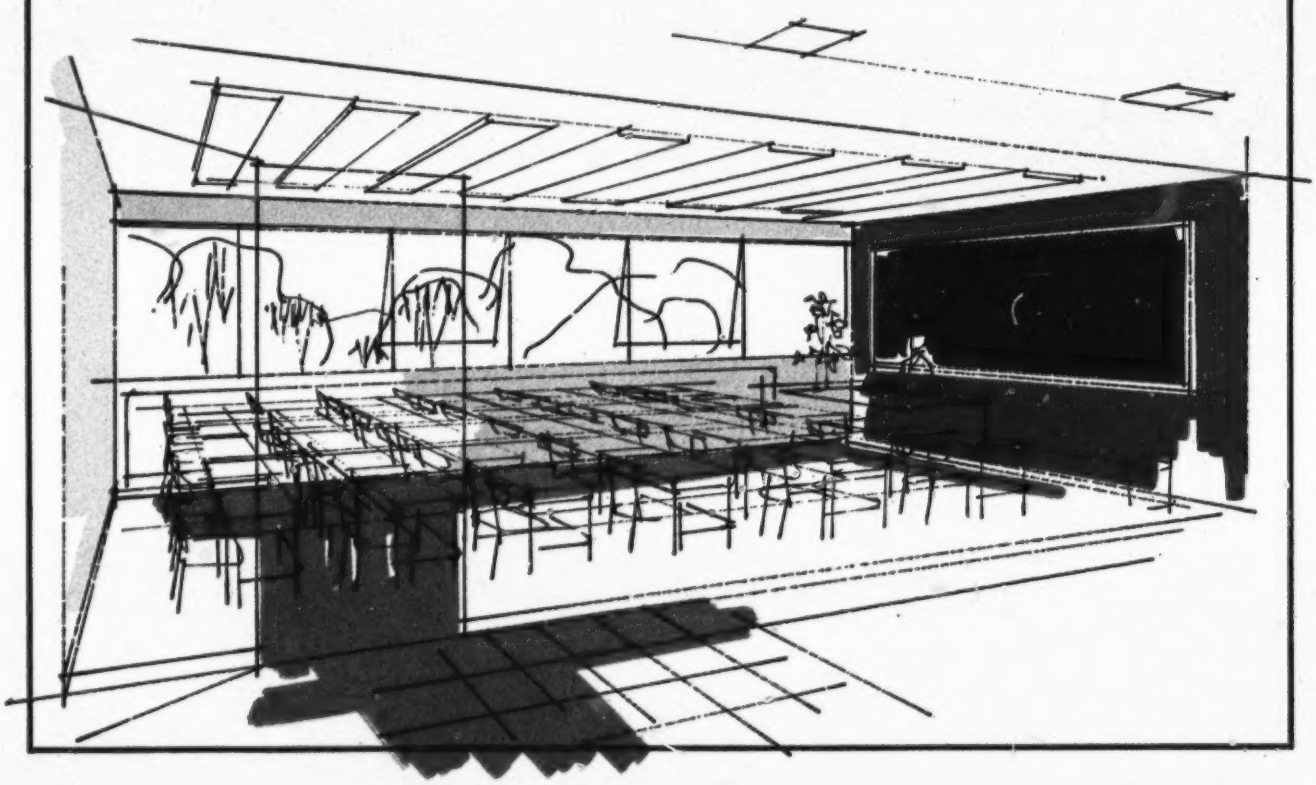
■ *Other Facilities* ■ Choosing colors for some special purpose areas like the cafeteria or lunchroom, the classrooms for shop, sewing, cooking and the low primary grades and the kindergarten depend greatly on the design of the room and the equipment in it. Without this knowledge, suggestions for color would have little basis. Other facilities are discussed in the following paragraphs.

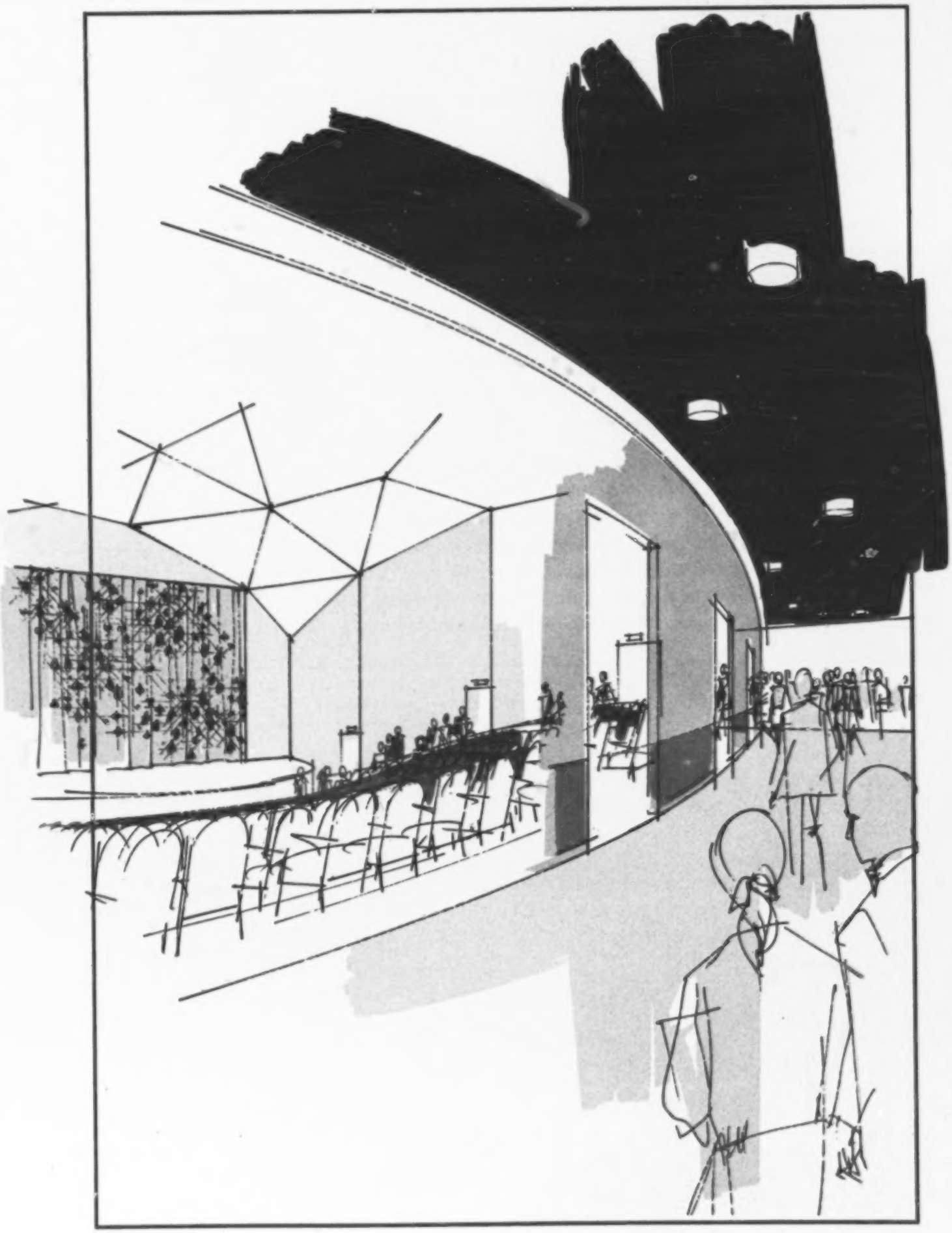
Most school auditoriums eventually serve a dual purpose. The immediate one is for assemblies and special performances before the student body and the community. Here the decorative attitude is appropriate—an attractive room is essential. However, as the school becomes crowded, the auditorium is used also as a study hall. An effective solution is to let the side walls be in a soft, warm tint for efficient utilization of the lighting, while the decorative character can be incorporated at the ends of the room. The back wall might have a relatively dark color for contrast. It could be in the near-gray range or have a chromatic impact. When a beautiful, patterned textile is used for the front curtain, the room takes on the visual character of the theater. During study periods, the primary intent is changed by opening the front curtain, exposing the border curtains which are customarily gray or black.

The auditorium foyer should have some unusual element of design to give the room a different character and provide a pause in the decorative pace of the school. Here a dramatic use of color will make a wonderful impression. For example, the ceiling can be painted in a very dark, strong hue such as navy blue.

The rooms for choral or band practice are sometimes located in the interior of the building. In such circumstances, it is better to use light tints for effective utilization of illumination as good visibility of the sheet music can be a problem. The wall generally faced should be light and quiet in color. However, one of the side walls in an exterior room can be painted

Classroom schemes should be influenced by the amount of window light, and medium value colors used on walls that would otherwise be too bright for comfort.





in a bright color, even an impact color such as red. Part of the enjoyment of music, like color, is emotional.

The gymnasium is not only used for sports but sometimes doubles as an auditorium. In any case, its primary function suggests that the wall colors should be selected to enhance the natural wood used for the flooring and for the seating. A very light beige is perhaps the best. Neutral gray, even if very light, will not look as well; it becomes cool in hue because of contrast with the warm floor color.

Locker rooms associated with the gymnasium are often in the basement and depend on artificial lighting. Frequently industrial fixtures are used which provide a harsh, direct lighting. Even so, color can do a great deal to make these areas more pleasant. The usual neutral gray for lockers must be avoided. A light, soft tan is far preferable and will look well with the customary wood benches. The surrounding wall colors should be light and pale. There is usually insufficient light to justify any but the lightest of tints. However, if the stairwells leading to the locker rooms have good lighting, a strong tint on one wall or a light yellow on all walls will add cheerfulness. The shower rooms associated with the gymnasium locker rooms ought to be white, except possibly for a small but bright accent of color at the entrance wall.

In recent years, swimming pools have become show places for abstract or geometrical wall patterns where every surface is colored. Another attitude, however, is to keep the walls quiet and play up the color of the water which can be made a beautiful aqua or

The auditorium foyer can have an exciting or unusual color treatment, while the auditorium itself must serve a dual purpose—as a study hall and as a theater. A beautiful front curtain can lend the proper atmosphere for the theater, yet be opened to expose the gray or black border curtains when used as a study room.

turquoise through the use of color on the underwater areas. This unique appearance of water suggests that it be emphasized, even with underwater lighting.

Toilet rooms in public buildings are the most difficult of all to keep clean due primarily to an inadequate number of ceiling lights. Thus, partitions between the toilet stalls act as efficient light baffles and throw most of the floor and the bowl in the shadow. If these areas receive direct illumination, people will be less prone to practice careless habits. A ceiling outlet over every other partition is needed. Even when the room is well lighted, the majority of the walls should be white and a light or strong tint can be introduced on one or two wall areas. By making the contrast sharp and clear, loitering is discouraged and cleanliness encouraged. Any hue is appropriate except where the illumination is dim; then blues are to be avoided. It can be meaningful to use different hues to distinguish the rooms used by boys and girls. If pink is used in the girls' room, care should be used to avoid a strong pink which will appear taupe in shadow. In all cases, white toilet partitions are suggested. Color is much better used on the walls outside of but neighboring to them.

The administrative offices also should have their share of color and interest, and in the foyer to them, this is especially true. A wall of bright color will give a fresh, new impression to those who enter for the first time. The office wall schemes can be developed with a moderate contrast level, using a light near-neutral on most of the walls and appropriately placing a strong tint or accent color to make the rooms more cheerful and pleasant. Consider the scene as a group of vistas, i.e., views from different positions in the offices and try to pick a wall or offset that will brighten the vista. This is believed to be a better technique for treating larger rooms in which a number of people work than using the same tint on all walls.

contrast levels with color

LOW CONTRAST

a light, soft near-gray of any hue on all walls.

a two-color combination of grays differing only in lightness, i.e., white with medium gray, or white with light gray.

a light tint of any hue on all walls.

MODERATE CONTRAST

a two-color combination of white or light gray with a light tint of any hue.

a three-color combination of white or light gray with light tints of two hues.

HIGH CONTRAST

a two-color combination of white or light gray with a stronger tint of one hue.

a three-color combination of white or light gray with stronger tints of two hues.

NOTE: *Any contrast level may be increased by adding an accent or impact color.*

contrast levels with surface pattern*

LOW CONTRAST

one tile color set continuously.

MODERATE TO HIGH CONTRAST DEPENDING ON COLORS USED

two values of the same hue set in an alternate square arrangement.

two different hues set in an alternate square arrangement.

black or white with one hue set in an alternate square arrangement.

black and white set in an alternate square arrangement.

* *For example, a marbleized floor tile. The concept of contrast level with pattern is applicable to other surface materials such as wall coverings and furnishings.*

color chart illustrating relative contrast levels

LOW (A)
a light, soft near-gray on all walls.

28

LOW (B)
a two-value combination of grays.

1

14

23

LOW (C)
a light tint of any hue on all walls.

24

Note: Any contrast level may be increased by adding an accent or impact color.

TRIM COLORS

E9

E15

F38

IMPACT COLORS

AC12

AC6

AC10

ACCENT COLORS

266

228

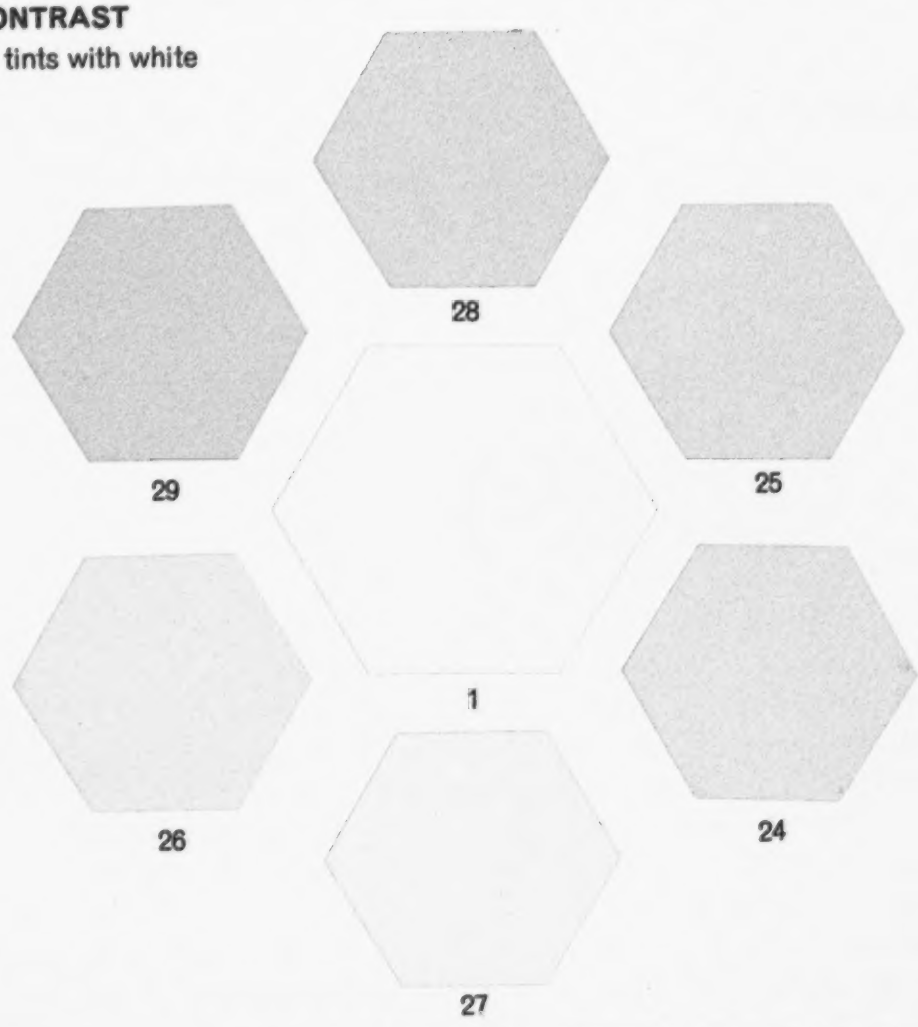
225

222

REFLECTANCE VALUES					
	1—84%	23—75%	28—74%	231—82%	AC10—23%
	4—64%	24—80%	29—73%	235—48%	AC12—34%
	12—59%	25—71%	222—76%	265—60%	E9—07%
	14—61%	26—75%	225—48%	266—60%	E15—06%
	16—66%	27—86%	228—60%	AC6—32%	F38—12%

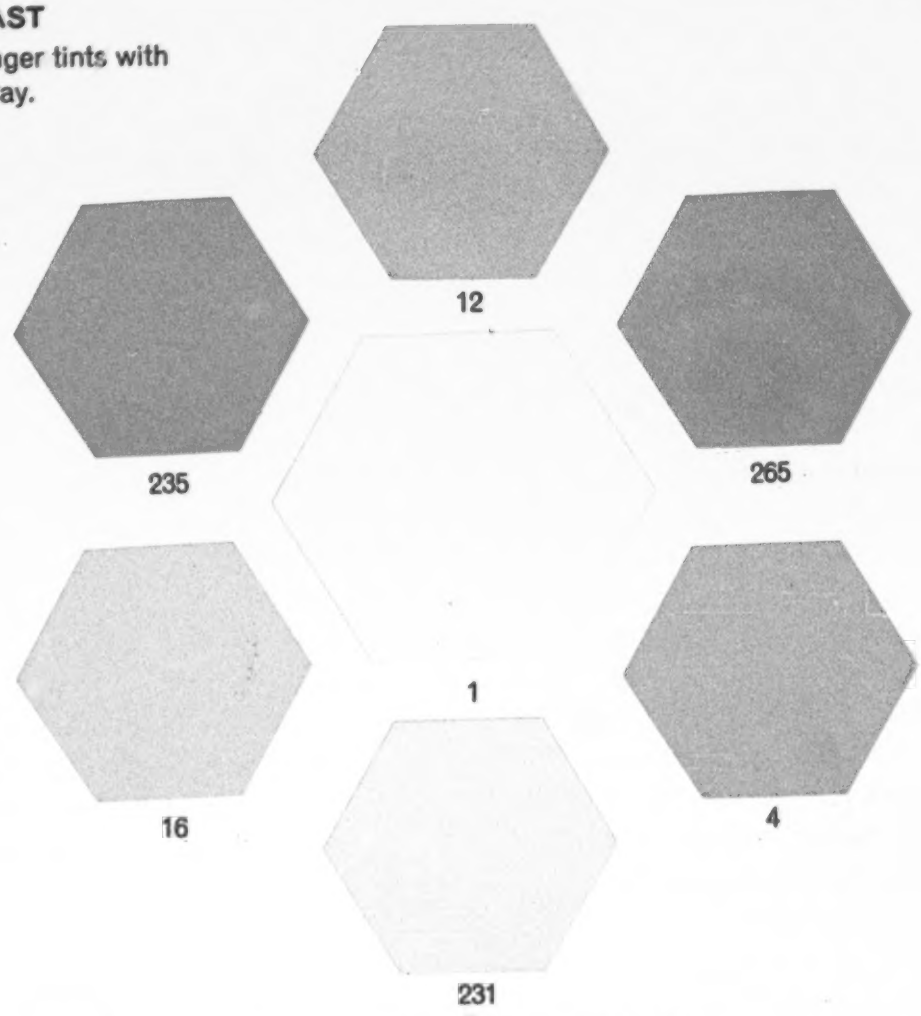
MODERATE CONTRAST

one or two light tints with white or light gray.



HIGH CONTRAST

one or two stronger tints with white or light gray.



Martin Marietta paint colors are indicated by numerals under color chips.

the color chart

■ *How Many Basic Colors are Practical?* ■ The eye can distinguish remarkably small differences between colors that are side by side and viewed in good illumination. However, when two near matches are separated by space as on opposite walls, or in time as from one room to another, small differences are not noticeable.

Because of the limitations imposed by space, color memory and illumination level, a palette of eight hues is about the maximum that can be readily appreciated in the development of different room schemes. These hues should be available in several levels of depth to obtain the desired level of contrast. The palette also should include a range of accent, impact and trim colors and a small sampling of the white and near-gray regions. The paint colors shown on the color chart represent a practical palette for hospitals and schools.

■ *Note on Color Terms* ■ In the text, color terms such as lighter, darker, or stronger indicate the direction in color difference, while other words as light tint, tint or strong tint define small regions on a map of color space. Hue, lightness and saturation are basic color attributes and are used in their widely accepted meaning. The word soft is used in a relative sense to indicate colors of low saturation but darker than the tints. A "warm" tint or "warm" near-gray describes the hue of the color and indicates it has a reddish to yellowish hue. Accent colors are stronger variations of tints, while impact colors are near the maximum obtainable saturation. Both would be found on a series between pure color and white.

The concept of contrast level is intended to help in developing attitudes on color planning by relating the character of today's color preferences to the impact of single colors and the contrast between colors. It refers to the summation of the differences in hue, lightness and saturation, to areas of the colors and to gloss. A scene with many and strong contrasts would have a high contrast level, while one with a soft, bland character would have a low contrast level.

Although any pattern may be broken into elements of color, it is perceived primarily as pattern, not color contrast. Thus, as pattern and arrangement are introduced, the contrast level of the scene will be increased because it now includes contrast of color with pattern as well as the contribution of each. The listings on the following page give a rough quantitative scale of the concept, the first series in terms of wall color, and the second in terms of pattern.

PAINT PLANTS AND OFFICES

CHICAGO 11, ILLINOIS
101 East Ontario Street

KANKAKEE, ILLINOIS
901 North Greenwood Avenue

DETROIT 7, MICHIGAN
211 Leib Street

KANSAS CITY 1, MISSOURI
1009 West 8th Street

UNION, NEW JERSEY
33 Koehl Avenue

HIGH POINT, NORTH CAROLINA
1647 English Street

MARIETTA, OHIO
Greene & Acme Streets

PITTSBURGH, PENNSYLVANIA
3104 Banksville Road

DALLAS 2, TEXAS
1306 River Street

OTTAWA 4, ONTARIO, CANADA
687 Wellington Street

MONTREAL, QUEBEC, CANADA
1091 Smith Street

TORONTO, ONTARIO, CANADA
191 Parliament

Mobil

MOBIL FINISHES COMPANY, INC.